
**Information technology — Computer
graphics — Programmer's Hierarchical
Interactive Graphics System (PHIGS)
language bindings —**

**Part 4:
C**

**AMENDMENT 2:
Incorporation of PHIGS amendments**

*Technologies de l'information — Infographie — Interfaces langage avec
PHIGS —*

Partie 4: C

AMENDEMENT 2: Incorporation des amendements de PHIGS

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Amendment 2 to ISO/IEC 9593-4:1991 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 24, *Computer graphics and image processing*.

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Amendment 2: Incorporation of PHIGS amendments

Page 2

2 Normative references

The number of the first reference is changed to ISO/IEC 9592-1:1996.

Page 3

3 The C language binding of PHIGS

3.1 Conformance

The following text replaces the content of 3.1:

“This binding incorporates the rules of conformance defined in the PHIGS Standard (ISO/IEC 9592) for PHIGS implementations, with those additional requirements specifically defined for C language implementations of PHIGS.

The following criteria are established for determining conformance of an implementation to this binding:

- a) In order to conform to the *Basic PHIGS profile*, an implementation of the C binding of PHIGS shall implement at least the functionality defined for the *Basic PHIGS profile* as specified in ISO/IEC

9592-1. It shall make visible all of the declarations in the C binding specified in clauses 5, 6, and 7 of this part of ISO/IEC 9593.

b) In order to conform to the *PHIGS PLUS profile*, an implementation of the C binding of PHIGS shall implement at least the functionality defined for the *PHIGS PLUS profile* as specified in ISO/IEC 9592-1. It shall make visible all of the declarations in the C binding specified in clauses 5 through 10 of this part of ISO/IEC 9593.

c) In order to conform to the *Full PHIGS profile*, an implementation of the C binding of PHIGS shall implement all of the functionality defined for the *Full PHIGS profile* as specified in ISO/IEC 9592-1. It shall make visible all of the declarations in the C binding specified in this part of ISO/IEC 9593.

d) The syntax of the function names shall be precisely as specified in this part of ISO/IEC 9593 and the parameters shall be of the data types stated in this part of ISO/IEC 9593.

Pages 10 to 13

4 Tables

4.2 Table of abbreviations

The following abbreviations are added alphabetically to Table 1

“

Table 1 - Abbreviations ordered alphabetically

Word or Phrase	Abbreviation
acknowledgement	ack
address	addr
associate	assoc
association	assoc
attribute	attr
automatic	auto
background	backg
boundary	bound
buffer	buf
centre	ctr
channel	chan
complete	comp
composition	compos
conditions	conds
configuration	config
continuity	cont
correlate, correlation	corr
define	def
destination	dest
disassociate	disassoc
disposition	dispos

Table 1 - Abbreviations ordered alphabetically (Continued)

Word or Phrase	Abbreviation
distance	dist
frequency	freq
group	grp
groups	grps
heuristics	heur
include	incl
incompatible	incompat
incomplete	incomp
indicator	indic
instance	inst
logical input device	lid
manipulation	manip
measure	meas
non-atomic	na
non-retained	nr
non-retained data	nrd
optimization	opt
parameterization	param
parameters	params
picture	pict
posting	post
process, processing	proc
reference	ref
registered	reg
render, rendering	rend
resource	res
sampling	sampl
source	src
target	targ
texture	textr
transfer	trans
traverse, traversal	trav
trigger	trig
uncompressed	uncomp
undefine	undef
weight	wt
which	NULL

Pages 14 to 20

4.3 Function names

4.3.1 List ordered alphabetically by bound name

The following function names are merged alphabetically by bound name in Table 2

“
Table 2 - Function names ordered by bound name

C Name	PHIGS and PHIGS PLUS Name
passoc_image_res (...)	ASSOCIATE IMAGE RESOURCE
passoc_trav_res (...)	ASSOCIATE TRAVERSAL RESOURCE
pattach_lid_to_light_src (...)	ATTACH LOGICAL INPUT DEVICE TO LIGHT SOURCE
pattach_lid_to_view (...)	ATTACH LOGICAL INPUT DEVICE TO VIEW
pcircle (...)	CIRCLE
pcircle3 (...)	CIRCLE 3
pcircular_arc (...)	CIRCULAR ARC
pcircular_arc3 (...)	CIRCULAR ARC 3
pcircular_arc_close (...)	CIRCULAR ARC CLOSE
pcircular_arc_close3 (...)	CIRCULAR ARC CLOSE 3
pclear_targ (...)	CLEAR TARGET
pclose_di_struct (...)	CLOSE DIRECT INTERPRETATION STRUCTURE
pcond_exec_struct (...)	CONDITIONAL EXECUTE STRUCTURE
pcond_inst_struct (...)	CONDITIONAL INSTANCE STRUCTURE
pcond_return (...)	CONDITIONAL RETURN
pcond_skip_elements (...)	CONDITIONAL SKIP ELEMENTS
pcond_skip_to_label (...)	CONDITIONAL SKIP TO LABEL
pcopy_elem_struct (...)	COPY ELEMENT FROM STRUCTURE
pcopy_elem_range_struct (...)	COPY ELEMENT RANGE FROM STRUCTURE
pcopy_elems_between_labels_struct (...)	COPY ELEMENTS BETWEEN LABELS FROM STRUCTURE
pcopy_targ (...)	COPY TARGET
pcreate_composite_measure (...)	CREATE COMPOSITE MEASURE
pcreate_mipmap_texture (...)	CREATE MIPMAP TEXTURE
pcreate_set_measure (...)	CREATE SET MEASURE
pcreate_targ (...)	CREATE TARGET
pdefine_choice (...)	DEFINE CHOICE
pdefine_composite (...)	DEFINE COMPOSITE
pdefine_linetype (...)	DEFINE LINETYPE
pdefine_locator (...)	DEFINE LOCATOR
pdefine_marker_type (...)	DEFINE MARKER TYPE
pdefine_pick (...)	DEFINE PICK
pdefine_post_grp (...)	DEFINE POSTING GROUP
pdefine_set (...)	DEFINE SET
pdefine_string (...)	DEFINE STRING
pdefine_stroke (...)	DEFINE STROKE

Table 2 - Function names ordered by bound name (Continued)

C Name	PHIGS and PHIGS PLUS Name
pdefine_valuator (...)	DEFINE VALUATOR
pdestroy_composite_measure (...)	DESTROY COMPOSITE MEASURE
pdestroy_set_measure (...)	DESTROY SET MEASURE
pdestroy_targ (...)	DESTROY TARGET
pdetach_lid_from_light_src (...)	DETACH LOGICAL INPUT DEVICE FROM LIGHT SOURCE
pdetach_lid_from_view (...)	DETACH LOGICAL INPUT DEVICE FROM VIEW
pdisable_di_pick (...)	DISABLE DIRECT INTERPRETATION PICK
pdisassoc_image_res (...)	DISASSOCIATE IMAGE RESOURCE
pdisassoc_trav_res (...)	DISASSOCIATE TRAVERSAL RESOURCE
pellipse (...)	ELLIPSE
pellipse3 (...)	ELLIPSE 3
pelliptical_arc (...)	ELLIPTICAL ARC
pelliptical_arc3 (...)	ELLIPTICAL ARC 3
pelliptical_arc_close (...)	ELLIPTICAL ARC CLOSE
pelliptical_arc_close3 (...)	ELLIPTICAL ARC CLOSE 3
penable_di_pick (...)	ENABLE DIRECT INTERPRETATION PICK
pend_watch_on_elem_range (...)	END WATCH ON ELEMENT RANGE
pfill_circle (...)	FILL CIRCLE
pfill_circle3 (...)	FILL CIRCLE 3
pfill_ellipse (...)	FILL ELLIPSE
pfill_ellipse3 (...)	FILL ELLIPSE 3
pget_composite (...)	GET COMPOSITE
pget_composite3 (...)	GET COMPOSITE 3
pget_set (...)	GET SET
pget_set3 (...)	GET SET 3
pinit_composite (...)	INITIALIZE COMPOSITE
pinit_composite3 (...)	INITIALIZE COMPOSITE 3
pinit_di_pick (...)	INITIALIZE DIRECT INTERPRETATION PICK
pinit_di_pick3 (...)	INITIALIZE DIRECT INTERPRETATION PICK 3
pinit_set (...)	INITIALIZE SET
pinit_set3 (...)	INITIALIZE SET 3
pinq_alpha_fac (...)	INQUIRE ALPHA FACILITIES
pinq_appl_filter (...)	INQUIRE APPLICATION FILTER
pinq_assoc_image_res (...)	INQUIRE ASSOCIATED IMAGE RESOURCES
pinq_back_clip_indicator (...)	INQUIRE BACK CLIPPING INDICATOR
pinq_back_plane_dist (...)	INQUIRE BACK PLANE DISTANCE
pinq_choice_fac (...)	INQUIRE CHOICE FACILITIES
pinq_composite_fac (...)	INQUIRE COMPOSITE FACILITIES
pinq_composite_meas_def (...)	INQUIRE COMPOSITE MEASURE DEFINITION
pinq_composite_st (...)	INQUIRE COMPOSITE DEVICE STATE
pinq_composite_st3 (...)	INQUIRE COMPOSITE DEVICE STATE 3
pinq_cond_trav_fac (...)	INQUIRE CONDITIONAL TRAVERSAL FACILITIES
pinq_config_setting_fac (...)	INQUIRE CONFIGURATION SETTING FACILITIES
pinq_dc_clip_regions (...)	INQUIRE DEVICE COORDINATE CLIP REGIONS
pinq_dc_clip_regions3 (...)	INQUIRE DEVICE COORDINATE CLIP REGIONS 3

Table 2 - Function names ordered by bound name (Continued)

C Name	PHIGS and PHIGS PLUS Name
pinq_dc_clip_regions_fac(...)	INQUIRE DEVICE COORDINATE CLIP REGIONS FACILITIES
pinq_def_composite_data (...)	INQUIRE DEFAULT COMPOSITE DEVICE DATA
pinq_def_composite_data3 (...)	INQUIRE DEFAULT COMPOSITE DEVICE DATA 3
pinq_def_di_pick_data (...)	INQUIRE DEFAULT DIRECT INTERPRETATION PICK DATA
pinq_def_di_pick_data3 (...)	INQUIRE DEFAULT DIRECT INTERPRETATION PICK DATA 3
pinq_def_set_data (...)	INQUIRE DEFAULT SET DEVICE DATA
pinq_def_set_data3 (...)	INQUIRE DEFAULT SET DEVICE DATA 3
pinq_def_targ_disp (...)	INQUIRE DEFAULT TARGET DISPOSITION
pinq_di_mode (...)	INQUIRE DIRECT INTERPRETATION MODE
pinq_di_pick_corr_point (...)	INQUIRE DIRECT INTERPRETATION PICK CORRELATION POINT
pinq_di_pick_corr_point3 (...)	INQUIRE DIRECT INTERPRETATION PICK CORRELATION POINT 3
pinq_di_pick_set_status (...)	INQUIRE DIRECT INTERPRETATION PICK SET STATUS
pinq_di_pick_st (...)	INQUIRE DIRECT INTERPRETATION PICK STATE
pinq_di_pick_st3 (...)	INQUIRE DIRECT INTERPRETATION PICK STATE 3
pinq_disp_targ (...)	INQUIRE DISPLAY TARGET
pinq_di_trav_fac(...)	INQUIRE DIRECT INTERPRETATION TRAVERSAL FACILITIES
pinq_dyns_post_grps (...)	INQUIRE DYNAMICS OF POSTING GROUPS
pinq_dyns_ws_attrs_texture (...)	INQUIRE DYNAMICS OF WORKSTATION ATTRIBUTES TEXTURE
pinq_edge_rep_full (...)	INQUIRE EDGE REPRESENTATION FULL
pinq_ext_pat_fac(...)	INQUIRE EXTENDED PATTERN FACILITIES
pinq_ext_pat_rep (...)	INQUIRE EXTENDED PATTERN REPRESENTATION
pinq_front_clip_indicator (...)	INQUIRE FRONT CLIPPING INDICATOR
pinq_front_plane_dist (...)	INQUIRE FRONT PLANE DISTANCE
pinq_grps_posted (...)	INQUIRE SET OF GROUPS TO WHICH POSTED
pinq_highl_fac (...)	INQUIRE HIGHLIGHTING FACILITIES
pinq_highl_rep (...)	INQUIRE HIGHLIGHTING REPRESENTATION
pinq_image_res (...)	INQUIRE IMAGE RESOURCE
pinq_image_res_fac(...)	INQUIRE IMAGE RESOURCE FACILITIES
pinq_lid_attached_to_light_src (...)	INQUIRE LOGICAL INPUT DEVICE ATTACHED TO LIGHT SOURCE
pinq_lid_attached_to_view (...)	INQUIRE LOGICAL INPUT DEVICE ATTACHED TO VIEW
pinq_lid_def (...)	INQUIRE LOGICAL INPUT DEVICE DEFINITION
pinq_line_rep_full (...)	INQUIRE POLYLINE REPRESENTATION FULL
pinq_linetype_def (...)	INQUIRE LINETYPE DEFINITION
pinq_linetype_def_fac(...)	INQUIRE LINETYPE DEFINITION FACILITIES
pinq_linetype_def_support (...)	INQUIRE LINETYPE DEFINITION SUPPORT
pinq_list_def_appl_filters (...)	INQUIRE LIST OF DEFINED APPLICATION FILTERS
pinq_list_highl_inds (...)	INQUIRE LIST OF HIGHLIGHTING INDICES

Table 2 - Function names ordered by bound name (Continued)

C Name	PHIGS and PHIGS PLUS Name
pinq_list_post_grps (...)	INQUIRE POSTED STRUCTURES FROM POSTING GROUP
pinq_list_texture_inds (...)	INQUIRE LIST OF TEXTURE INDICES
pinq_lists_avail_lids (...)	INQUIRE LISTS OF AVAILABLE LOGICAL INPUT DEVICES
pinq_loc_facns (...)	INQUIRE LOCATOR FACILITIES
pinq_marker_type_def (...)	INQUIRE MARKER TYPE DEFINITION
pinq_marker_type_def_facns (...)	INQUIRE MARKER TYPE DEFINITION FACILITIES
pinq_marker_type_def_support (...)	INQUIRE MARKER TYPE DEFINITION SUPPORT
pinq_mipmap_facns (...)	INQUIRE MIPMAP FACILITIES
pinq_num_avail_na_in (...)	INQUIRE NUMBER OF AVAILABLE NON-ATOMIC LOGICAL INPUT DEVICES
pinq_num_def_linetypes (...)	INQUIRE NUMBER OF DEFINED LINETYPES
pinq_num_def_marker_types (...)	INQUIRE NUMBER OF DEFINED MARKER TYPES
pinq_num_pred_appl_filters (...)	INQUIRE NUMBER OF PREDEFINED APPLICATION FILTERS
pinq_pick_facns (...)	INQUIRE PICK FACILITIES
pinq_pick_mapping_facns (...)	INQUIRE PICK MAPPING FACILITIES
pinq_pick_mapping_state (...)	INQUIRE PICK MAPPING STATE
pinq_pict_status (...)	INQUIRE PICTURE STATUS
pinq_posted_di_struct (...)	INQUIRE POSTED DIRECT INTERPRETATION STRUCTURE
pinq_posted_structs_from_post_grp (...)	INQUIRE POSTED STRUCTURES FROM POSTING GROUP
pinq_post_grp (...)	INQUIRE POSTING GROUP
pinq_post_grp_facns (...)	INQUIRE POSTING GROUP FACILITIES
pinq_pred_appl_filter (...)	INQUIRE PREDEFINED APPLICATION FILTER
pinq_pred_assoc_targ_trav_res (...)	INQUIRE PREDEFINED ASSOCIATION OF TARGET WITH TRAVERSAL RESOURCES
pinq_pred_assoc_trav_res_targ (...)	INQUIRE PREDEFINED ASSOCIATION OF TRAVERSAL RESOURCE WITH TARGET
pinq_pred_composite_meas_def (...)	INQUIRE PREDEFINED COMPOSITE MEASURE DEFINITION
pinq_pred_edge_rep_full (...)	INQUIRE PREDEFINED EDGE REPRESENTATION FULL
pinq_pred_ext_pat_rep (...)	INQUIRE PREDEFINED EXTENDED PATTERN REPRESENTATION
pinq_pred_highl_rep (...)	INQUIRE PREDEFINED HIGHLIGHTING REPRESENTATION
pinq_pred_image_res (...)	INQUIRE PREDEFINED IMAGE RESOURCE
pinq_pred_line_rep_full (...)	INQUIRE PREDEFINED POLYLINE REPRESENTATION FULL
pinq_pred_linetype_def (...)	INQUIRE PREDEFINED LINETYPE DEFINITION
pinq_pred_marker_type_def (...)	INQUIRE PREDEFINED MARKER TYPE DEFINITION
pinq_pred_post_grp (...)	INQUIRE PREDEFINED POSTING GROUP
pinq_pred_set_meas_def (...)	INQUIRE PREDEFINED SET MEASURE DEFINITION
pinq_pred_texture_rep (...)	INQUIRE PREDEFINED TEXTURE REPRESENTATION

Table 2 - Function names ordered by bound name (Continued)

C Name	PHIGS and PHIGS PLUS Name
pinq_proj_ref_point (...)	INQUIRE PROJECTION REFERENCE POINT
pinq_proj_type (...)	INQUIRE PROJECTION TYPE
pinq_proj_vp (...)	INQUIRE PROJECTION VIEWPORT
pinq_proj_vp3 (...)	INQUIRE PROJECTION VIEWPORT 3
pinq_rend_targ (...)	INQUIRE RENDERING TARGET
pinq_set_fac3 (...)	INQUIRE SET FACILITIES
pinq_set_meas_def (...)	INQUIRE SET MEASURE DEFINITION
pinq_set_st (...)	INQUIRE SET DEVICE STATE
pinq_set_st3 (...)	INQUIRE SET DEVICE STATE 3
pinq_string_fac3 (...)	INQUIRE STRING FACILITIES
pinq_stroke_fac3 (...)	INQUIRE STROKE FACILITIES
pinq_targ_assoc_trav_res (...)	INQUIRE TARGET ASSOCIATED WITH TRAVERSAL RESOURCE
pinq_targ_dispos (...)	INQUIRE TARGET DISPOSITION
pinq_targ_fac3 (...)	INQUIRE TARGET FACILITIES
pinq_targ_manip_mode (...)	INQUIRE TARGET MANIPULATION MODE
pinq_targ_st (...)	INQUIRE TARGET STATE
pinq_texture_fac3 (...)	INQUIRE TEXTURE FACILITIES
pinq_texture_map_fac3 (...)	INQUIRE TEXTURE MAPPING FACILITIES
pinq_texture_rep (...)	INQUIRE TEXTURE REPRESENTATION
pinq_transparency_mode (...)	INQUIRE TRANSPARENCY MODE
pinq_transparency_thresholds (...)	INQUIRE TRANSPARENCY THRESHOLDS
pinq_trav_res_assoc_targ (...)	INQUIRE TRAVERSAL RESOURCES ASSOCIATED WITH TARGET
pinq_trav_res_fac3 (...)	INQUIRE TRAVERSAL RESOURCE FACILITIES
pinq_val_fac3 (...)	INQUIRE VALUATOR FACILITIES
pinq_view_plane_dist (...)	INQUIRE VIEW PLANE DISTANCE
pinq_view_plane_norm (...)	INQUIRE VIEW PLANE NORMAL
pinq_view_ref_point (...)	INQUIRE VIEW REFERENCE POINT
pinq_view_ref_point3 (...)	INQUIRE VIEW REFERENCE POINT 3
pinq_view_status (...)	INQUIRE VIEW STATUS
pinq_view_up_vec (...)	INQUIRE VIEW UP VECTOR
pinq_view_up_vec3 (...)	INQUIRE VIEW UP VECTOR 3
pinq_view_win_limits (...)	INQUIRE VIEW WINDOW LIMITS
pinq_watch_elem_range (...)	INQUIRE WATCH ON ELEMENT RANGE
pinq_watch_range_st (...)	INQUIRE WATCH RANGE STATE
pinq_wss_di_struct_posted (...)	INQUIRE SET OF WORKSTATIONS TO WHICH DIRECT INTERPRETATION STRUCTURE POSTED
pinq_ws_st_table_highl (...)	INQUIRE WORKSTATION STATE TABLE LENGTHS HIGHLIGHTING
pinq_ws_st_table_texture (...)	INQUIRE WORKSTATION STATE TABLE LENGTHS TEXTURE
pinq_xy_clip_indicator (...)	INQUIRE X-Y CLIPPING INDICATOR
pinst_struct (...)	INSTANCE STRUCTURE
pmanip_trav_res (...)	MANIPULATE TRAVERSAL RESOURCE
pmap_dc_point_to_pick_paths (...)	MAP DEVICE COORDINATE POINT TO PICK PATHS

Table 2 - Function names ordered by bound name (Continued)

C Name	PHIGS and PHIGS PLUS Name
pmap_dc_to_wc (...)	MAP DEVICE COORDINATES TO WORLD COORDINATES
pmap_dc_to_wsc (...)	MAP DEVICE COORDINATES TO WINDOW SYSTEM COORDINATES
pmap_wsc_to_dc (...)	MAP WINDOW SYSTEM COORDINATES TO DEVICE COORDINATES
pmark_multi_pass_compl (...)	MARK MULTI-PASS COMPLETION
pmark_multi_pass_start (...)	MARK MULTI-PASS START
pmark_pass_compl (...)	MARK PASS COMPLETION
pmark_pass_start (...)	MARK PASS START
pmove_elem_struct (...)	MOVE ELEMENT FROM STRUCTURE
pmove_elem_range_struct (...)	MOVE ELEMENT RANGE FROM STRUCTURE
pmove_elems_between_labels_struct (...)	MOVE ELEMENTS BETWEEN LABELS FROM STRUCTURE
popen_di_struct (...)	OPEN DIRECT INTERPRETATION STRUCTURE
ppop_st (...)	POP STATE
ppost_di_struct (...)	POST DIRECT INTERPRETATION STRUCTURE
ppost_struct_to_grp (...)	POST STRUCTURE TO GROUP
ppush_st (...)	PUSH STATE
predraw_all_from_grp_on_targ (	REDRAW ALL STRUCTURES FROM POSTING GROUP ON TARGET
predraw_all_structs_from_grp (...)	REDRAW ALL STRUCTURES FROM POSTING GROUP
predraw_all_structs_on_targ (...)	REDRAW ALL STRUCTURES ON TARGET
prenew_di_state (...)	RENEW DIRECT INTERPRETATION STATE
preq_composite (...)	REQUEST COMPOSITE
preq_composite3 (...)	REQUEST COMPOSITE 3
preq_set (...)	REQUEST SET
preq_set3 (...)	REQUEST SET 3
preset_all_trav_res (...)	RESET ALL TRAVERSAL RESOURCES
pret_num_passes_req (...)	RETRIEVE NUMBER OF PASSES REQUIRED
pret_window_system_colr (...)	RETRIEVE WINDOW SYSTEM COLOUR
psample_composite (...)	SAMPLE COMPOSITE
psample_composite3 (...)	SAMPLE COMPOSITE 3
psample_set (...)	SAMPLE SET
psample_set3 (...)	SAMPLE SET 3
pset_active_textures (...)	SET ACTIVE TEXTURES
pset_alpha_data_sel_ind (...)	SET ALPHA DATA SELECTION INDEX
pset_alpha_src_sel (...)	SET ALPHA SOURCE SELECTOR
pset_appl_filter (...)	SET APPLICATION FILTER
pset_appl_int (...)	SET APPLICATION INTEGER
pset_appl_real (...)	SET APPLICATION REAL
pset_back_active_textures (...)	SET BACK ACTIVE TEXTURES
pset_back_clip_indicator (...)	SET BACK CLIPPING INDICATOR
pset_back_plane_dist (...)	SET BACK PLANE DISTANCE
pset_back_transparency (...)	SET BACK TRANSPARENCY
pset_composite_mode (...)	SET COMPOSITE MODE

Table 2 - Function names ordered by bound name (Continued)

C Name	PHIGS and PHIGS PLUS Name
pset_composite_pick_filter (...)	SET COMPOSITE PICK FILTER
pset_cond_flags (...)	SET CONDITION FLAGS
pset_cond_flags_from_tests (...)	SET CONDITION FLAGS FROM TESTS
pset_dc_clip_regions (...)	SET DEVICE COORDINATE CLIP REGIONS
pset_dc_clip_regions3 (...)	SET DEVICE COORDINATE CLIP REGIONS 3
pset_depth_cue_rep_mask (...)	SET DEPTH CUE REPRESENTATION MASK
pset_di_mode (...)	SET DIRECT INTERPRETATION MODE
pset_di_pick_corr_point (...)	SET DIRECT INTERPRETATION PICK CORRELATION POINT
pset_di_pick_corr_point3 (...)	SET DIRECT INTERPRETATION PICK CORRELATION POINT 3
pset_di_pick_filter (...)	SET DIRECT INTERPRETATION PICK FILTER
pset_disp_targ (...)	SET DISPLAY TARGET
pset_edgcap (...)	SET EDGE CAP
pset_edgejoin (...)	SET EDGE JOIN
pset_edgemitre_limit (...)	SET EDGEMITRE LIMIT
pset_edge_rep_full (...)	SET EDGE REPRESENTATION FULL
pset_edge_rep_mask (...)	SET EDGE REPRESENTATION MASK
pset_edgetype_adapt (...)	SET EDGETYPE ADAPTABILITY
pset_edgetype_cont (...)	SET EDGETYPE CONTINUITY
pset_edgetype_offset (...)	SET EDGETYPE OFFSET
pset_ext_pat_rep (...)	SET EXTENDED PATTERN REPRESENTATION
pset_front_clip_indicator (...)	SET FRONT CLIPPING INDICATOR
pset_front_plane_dist (...)	SET FRONT PLANE DISTANCE
pset_highl_ind (...)	SET HIGHLIGHTING INDEX
pset_highl_method (...)	SET HIGHLIGHTING METHOD
pset_highl_rep (...)	SET HIGHLIGHTING REPRESENTATION
pset_int_rep_mask (...)	SET INTERIOR REPRESENTATION MASK
pset_linecap (...)	SET LINE CAP
pset_linejoin (...)	SET LINE JOIN
pset_linemitre_limit (...)	SET LINEMITRE LIMIT
pset_line_rep_full (...)	SET POLYLINE REPRESENTATION FULL
pset_line_rep_mask (...)	SET POLYLINE REPRESENTATION MASK
pset_linetype_adapt (...)	SET LINETYPE ADAPTABILITY
pset_linetype_cont (...)	SET LINETYPE CONTINUITY
pset_linetype_offset (...)	SET LINETYPE OFFSET
pset_marker_rep_mask (...)	SET POLYMARKER REPRESENTATION MASK
pset_pat_rep_mask (...)	SET PATTERN REPRESENTATION MASK
pset_pick_mapping_data (...)	SET PICK MAPPING DATA
pset_post_grp_backg_method (...)	SET POSTING GROUP BACKGROUND METHOD
pset_post_grp_backg_style (...)	SET POSTING GROUP BACKGROUND STYLE
pset_post_grp_border_ind (...)	SET POSTING GROUP BORDER INDEX
pset_post_grp_border_indicator (...)	SET POSTING GROUP BORDER INDICATOR
pset_post_grp_priority (...)	SET POSTING GROUP PRIORITY
pset_post_grp_status (...)	SET POSTING GROUP STATUS
pset_proj_ref_point (...)	SET PROJECTION REFERENCE POINT
pset_proj_type (...)	SET PROJECTION TYPE

Table 2 - Function names ordered by bound name (Continued)

C Name	PHIGS and PHIGS PLUS Name
pset_proj_vp (...)	SET PROJECTION VIEWPORT
pset_proj_vp3 (...)	SET PROJECTION VIEWPORT 3
pset_refl_rep_mask (...)	SET REFLECTANCE REPRESENTATION MASK
pset_rend_targ (...)	SET RENDERING TARGET
pset_set_mode (...)	SET SET MODE
pset_set_pick_filter (...)	SET SET PICK FILTER
pset_st_visual_rep (...)	SET STATE OF VISUAL REPRESENTATION
pset_targ_dispos (...)	SET TARGET DISPOSITION
pset_targ_manip_mode (...)	SET TARGET MANIPULATION MODE
pset_targ_st_visual_rep (...)	SET TARGET STATE OF VISUAL REPRESENTATION
pset_text_rep_mask (...)	SET TEXT REPRESENTATION MASK
pset_texture_binding (...)	SET TEXTURE BINDING
pset_texture_composition (...)	SET TEXTURE COMPOSITION
pset_texture_param (...)	SET TEXTURE PARAMETRIZATION
pset_texture_perspect_corr (...)	SET TEXTURE PERSPECTIVE CORRECTION
pset_texture_rep (...)	SET TEXTURE REPRESENTATION
pset_texture_rep_mask (...)	SET TEXTURE REPRESENTATION MASK
pset_texture_res_opt_heur (...)	SET TEXTURE RESOURCE OPTIMIZATION HEURISTICS
pset_texture_sampling (...)	SET TEXTURE SAMPLING
pset_texture_sampling_freq (...)	SET TEXTURE SAMPLING FREQUENCY
pset_transparency (...)	SET TRANSPARENCY
pset_transparency_mode (...)	SET TRANSPARENCY MODE
pset_transparency_thresholds (...)	SET TRANSPARENCY THRESHOLDS
pset_view_plane_dist (...)	SET VIEW PLANE DISTANCE
pset_view_plane_norm (...)	SET VIEW PLANE NORMAL
pset_view_ref_point (...)	SET VIEW REFERENCE POINT
pset_view_ref_point3 (...)	SET VIEW REFERENCE POINT 3
pset_view_up_vec (...)	SET VIEW UP VECTOR
pset_view_up_vec3 (...)	SET VIEW UP VECTOR 3
pset_view_win_limits (...)	SET VIEW WINDOW LIMITS
pset_watch_on_elem_range (...)	SET WATCH ON ELEMENT RANGE
pset_xy_clip_indicator (...)	SET X-Y CLIPPING INDICATOR
ptrans_di_pick_set (...)	TRANSFER DIRECT INTERPRETATION PICK SET
pundefine_choice (...)	UNDEFINE CHOICE
pundefine_composite (...)	UNDEFINE COMPOSITE
pundefine_locator (...)	UNDEFINE LOCATOR
pundefine_pick (...)	UNDEFINE PICK
pundefine_post_grp (...)	UNDEFINE POSTING GROUP
pundefine_set (...)	UNDEFINE SET
pundefine_string (...)	UNDEFINE STRING
pundefine_stroke (...)	UNDEFINE STROKE
pundefine_valuator (...)	UNDEFINE VALUATOR
punpost_all_structs_from_grp (...)	UNPOST ALL STRUCTURES FROM GROUP
punpost_di_struct (...)	UNPOST DIRECT INTERPRETATION STRUCTURE
punpost_structs_from_grps (...)	UNPOST STRUCTURES FROM GROUPS

Table 2 - Function names ordered by bound name (Continued)

C Name	PHIGS and PHIGS PLUS Name
pupd_targ (...)	UPDATE TARGET
pupd_view_rep (...)	UPDATE VIEW REPRESENTATION
pws_type_create (...)	WORKSTATION TYPE CREATE
pws_type_destroy (...)	WORKSTATION TYPE DESTROY
pws_type_get (...)	WORKSTATION TYPE GET
pws_type_set (...)	WORKSTATION TYPE SET

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”

Pages 20 to 26

4.3.2 List ordered alphabetically by PHIGS and PHIGS PLUS name

The following function names are merged alphabetically by function name in Table 3:

“

Table 3 - Function names ordered by PHIGS and PHIGS PLUS function name

PHIGS and PHIGS PLUS Name	C Name
ASSOCIATE IMAGE RESOURCE	passoc_image_res (...)
ASSOCIATE TRAVERSAL RESOURCE	passoc_trav_res (...)
ATTACH LOGICAL INPUT DEVICE TO LIGHT SOURCE	pattach_lid_to_light_src (...)
ATTACH LOGICAL INPUT DEVICE TO VIEW	pattach_lid_to_view (...)
CIRCLE	pcircle (...)
CIRCLE 3	pcircle3 (...)
CIRCULAR ARC	pcircular_arc (...)
CIRCULAR ARC 3	pcircular_arc3 (...)
CIRCULAR ARC CLOSE	pcircular_arc_close (...)
CIRCULAR ARC CLOSE 3	pcircular_arc_close3 (...)
CLEAR TARGET	pclear_targ (...)
CLOSE DIRECT INTERPRETATION STRUCTURE	pclose_di_struct (...)
CONDITIONAL EXECUTE STRUCTURE	pcond_exec_struct (...)
CONDITIONAL INSTANCE STRUCTURE	pcond_inst_struct (...)
CONDITIONAL RETURN	pcond_return (...)
CONDITIONAL SKIP ELEMENTS	pcond_skip_elements (...)
CONDITIONAL SKIP TO LABEL	pcond_skip_to_label (...)
COPY ELEMENT FROM STRUCTURE	pcopy_elem_struct (...)
COPY ELEMENT RANGE FROM STRUCTURE	pcopy_elem_range_struct (...)
COPY ELEMENTS BETWEEN LABELS FROM STRUCTURE	pcopy_elems_between_labels_struct (...)
COPY TARGET	pcopy_targ (...)
CREATE COMPOSITE MEASURE	pcreate_composite_measure (...)
CREATE MIPMAP TEXTURE	pcreate_mipmap_texture (...)
CREATE SET MEASURE	pcreate_set_measure (...)
CREATE TARGET	pcreate_targ (...)
DEFINE CHOICE	pdefine_choice (...)
DEFINE COMPOSITE	pdefine_composite (...)
DEFINE LINETYPE	pdefine_linetype (...)
DEFINE LOCATOR	pdefine_locator (...)
DEFINE MARKER TYPE	pdefine_marker_type (...)
DEFINE PICK	pdefine_pick (...)
DEFINE POSTING GROUP	pdefine_post_grp (...)
DEFINE SET	pdefine_set (...)
DEFINE STRING	pdefine_string (...)
DEFINE STROKE	pdefine_stroke (...)
DEFINE VALUATOR	pdefine_valuator (...)
DESTROY COMPOSITE MEASURE	pdestroy_composite_measure (...)
DESTROY SET MEASURE	pdestroy_set_measure (...)

Table 3 - Function names ordered by PHIGS and PHIGS PLUS function name (Continued)

PHIGS and PHIGS PLUS Name	C Name
DESTROY TARGET	pdestroy_targ (...)
DETACH LOGICAL INPUT DEVICE FROM LIGHT SOURCE	pdetach_lid_from_light_src (...)
DETACH LOGICAL INPUT DEVICE FROM VIEW	pdetach_lid_from_view (...)
DISABLE DIRECT INTERPRETATION PICK	pdisable_di_pick (...)
DISASSOCIATE IMAGE RESOURCE	pdisassoc_image_res (...)
DISASSOCIATE TRAVERSAL RESOURCE	pdisassoc_trav_res (...)
ELLIPSE	pellipse (...)
ELLIPSE 3	pellipse3 (...)
ELLIPTICAL ARC	pelliptical_arc (...)
ELLIPTICAL ARC 3	pelliptical_arc3 (...)
ELLIPTICAL ARC CLOSE	pelliptical_arc_close (...)
ELLIPTICAL ARC CLOSE 3	pelliptical_arc_close3 (...)
ENABLE DIRECT INTERPRETATION PICK	penable_di_pick (...)
END WATCH ON ELEMENT RANGE	pend_watch_on_elem_range (...)
FILL CIRCLE	pfill_circle (...)
FILL CIRCLE 3	pfill_circle3 (...)
FILL ELLIPSE	pfill_ellipse (...)
FILL ELLIPSE 3	pfill_ellipse3 (...)
GET COMPOSITE	pget_composite (...)
GET COMPOSITE 3	pget_composite3 (...)
GET SET	pget_set (...)
GET SET 3	pget_set3 (...)
INITIALIZE COMPOSITE	pinit_composite (...)
INITIALIZE COMPOSITE 3	pinit_composite3 (...)
INITIALIZE DIRECT INTERPRETATION PICK	pinit_di_pick (...)
INITIALIZE DIRECT INTERPRETATION PICK 3	pinit_di_pick3 (...)
INITIALIZE SET	pinit_set (...)
INITIALIZE SET 3	pinit_set3 (...)
INQUIRE ALPHA FACILITIES	pinq_alpha_facs (...)
INQUIRE APPLICATION FILTER	pinq_appl_filter (...)
INQUIRE ASSOCIATED IMAGE RESOURCES	pinq_assoc_image_res (...)
INQUIRE BACK CLIPPING INDICATOR	pinq_back_clip_indicator (...)
INQUIRE BACK PLANE DISTANCE	pinq_back_plane_dist (...)
INQUIRE CHOICE FACILITIES	pinq_choice_facs (...)
INQUIRE COMPOSITE DEVICE STATE	pinq_composite_st (...)
INQUIRE COMPOSITE DEVICE STATE 3	pinq_composite_st3 (...)
INQUIRE COMPOSITE FACILITIES	pinq_composite_facs (...)
INQUIRE COMPOSITE MEASURE DEFINITION	pinq_composite_meas_def (...)
INQUIRE CONDITIONAL TRAVERSAL FACILITIES	pinq_cond_trav_facs (...)
INQUIRE CONFIGURATION SETTING FACILITIES	pinq_config_setting_facs (...)
INQUIRE DEFAULT COMPOSITE DEVICE DATA	pinq_def_composite_data (...)
INQUIRE DEFAULT COMPOSITE DEVICE DATA 3	pinq_def_composite_data3 (...)
INQUIRE DEFAULT DIRECT INTERPRETATION PICK DATA	pinq_def_di_pick_data (...)
INQUIRE DEFAULT DIRECT INTERPRETATION PICK DATA 3	pinq_def_di_pick_data3 (...)
INQUIRE DEFAULT SET DEVICE DATA	pinq_def_set_data (...)
INQUIRE DEFAULT SET DEVICE DATA 3	pinq_def_set_data3 (...)

Table 3 - Function names ordered by PHIGS and PHIGS PLUS function name (Continued)

PHIGS and PHIGS PLUS Name	C Name
INQUIRE DEFAULT TARGET DISPOSITION	pinq_def_targ_disp (...)
INQUIRE DEVICE COORDINATE CLIP REGIONS	pinq_dc_clip_regions (...)
INQUIRE DEVICE COORDINATE CLIP REGIONS 3	pinq_dc_clip_regions3 (...)
INQUIRE DEVICE COORDINATE CLIP REGIONS FACILITIES	pinq_dc_clip_regions_fac (...)
INQUIRE DIRECT INTERPRETATION MODE	pinq_di_mode (...)
INQUIRE DIRECT INTERPRETATION PICK CORRELATION POINT	pinq_di_pick_corr_point (...)
INQUIRE DIRECT INTERPRETATION PICK CORRELATION POINT 3	pinq_di_pick_corr_point3 (...)
INQUIRE DIRECT INTERPRETATION PICK SET STATUS	pinq_di_pick_set_status (...)
INQUIRE DIRECT INTERPRETATION PICK STATE	pinq_di_pick_st (...)
INQUIRE DIRECT INTERPRETATION PICK STATE 3	pinq_di_pick_st3 (...)
INQUIRE DIRECT INTERPRETATION TRAVERSAL FACILITIES	pinq_di_trav_fac (...)
INQUIRE DISPLAY TARGET	pinq_disp_targ (...)
INQUIRE DYNAMICS OF POSTING GROUPS	pinq_dyns_post_grps (...)
INQUIRE DYNAMICS OF WORKSTATION ATTRIBUTES TEXTURE	pinq_dyns_ws_attrs_texture (...)
INQUIRE EDGE REPRESENTATION FULL	pinq_edge_rep_full (...)
INQUIRE EXTENDED PATTERN FACILITIES	pinq_ext_pat_fac (...)
INQUIRE EXTENDED PATTERN REPRESENTATION	pinq_ext_pat_rep (...)
INQUIRE FRONT CLIPPING INDICATOR	pinq_front_clip_indicator (...)
INQUIRE FRONT PLANE DISTANCE	pinq_front_plane_dist (...)
INQUIRE HIGHLIGHTING FACILITIES	pinq_highl_fac (...)
INQUIRE HIGHLIGHTING REPRESENTATION	pinq_highl_rep (...)
INQUIRE IMAGE RESOURCE	pinq_image_res (...)
INQUIRE IMAGE RESOURCE FACILITIES	pinq_image_res_fac (...)
INQUIRE LINETYPE DEFINITION	pinq_linetype_def (...)
INQUIRE LINETYPE DEFINITION FACILITIES	pinq_linetype_def_fac (...)
INQUIRE LINETYPE DEFINITION SUPPORT	pinq_linetype_def_support (...)
INQUIRE LIST OF DEFINED APPLICATION FILTERS	pinq_list_def_appl_filters (...)
INQUIRE LIST OF HIGHLIGHTING INDICES	pinq_list_highl_inds (...)
INQUIRE LIST OF POSTING GROUPS	pinq_list_post_grps (...)
INQUIRE LIST OF TEXTURE INDICES	pinq_list_texture_inds (...)
INQUIRE LISTS OF AVAILABLE LOGICAL INPUT DEVICES	pinq_lists_avail_lids (...)
INQUIRE LOCATOR FACILITIES	pinq_loc_fac (...)
INQUIRE LOGICAL INPUT DEVICE ATTACHED TO LIGHT SOURCE	pinq_lid_attached_to_light_src (...)
INQUIRE LOGICAL INPUT DEVICE ATTACHED TO VIEW	pinq_lid_attached_to_view (...)
INQUIRE LOGICAL INPUT DEVICE DEFINITION	pinq_lid_def (...)
INQUIRE MARKER TYPE DEFINITION	pinq_marker_type_def (...)
INQUIRE MARKER TYPE DEFINITION FACILITIES	pinq_marker_type_def_fac (...)
INQUIRE MARKER TYPE DEFINITION SUPPORT	pinq_marker_type_def_support (...)
INQUIRE MIPMAP FACILITIES	pinq_mipmap_fac (...)
INQUIRE NUMBER OF AVAILABLE NON-ATOMIC LOGICAL INPUT DEVICES	pinq_num_avail_na_in (...)
INQUIRE NUMBER OF DEFINED LINETYPES	pinq_num_def_linetypes (...)

Table 3 - Function names ordered by PHIGS and PHIGS PLUS function name (Continued)

PHIGS and PHIGS PLUS Name	C Name
INQUIRE NUMBER OF DEFINED MARKER TYPES	pinq_num_def_marker_types (...)
INQUIRE NUMBER OF PREDEFINED APPLICATION FILTERS	pinq_num_pred_appl_filters (...)
INQUIRE PICK FACILITIES	pinq_pick_facs (...)
INQUIRE PICK MAPPING FACILITIES	pinq_pick_mapping_facs (...)
INQUIRE PICK MAPPING STATE	pinq_pick_mapping_state (...)
INQUIRE PICTURE STATUS	pinq_pict_status (...)
INQUIRE POLYLINE REPRESENTATION FULL	pinq_line_rep_full (...)
INQUIRE POSTED DIRECT INTERPRETATION STRUCTURE	pinq_posted_di_struct (...)
INQUIRE POSTED STRUCTURES FROM POSTING GROUP	pinq_posted_structs_from_post_grp (...)
INQUIRE POSTING GROUP	pinq_post_grp (...)
INQUIRE POSTING GROUP FACILITIES	pinq_post_grp_facs (...)
INQUIRE PREDEFINED APPLICATION FILTER	pinq_pred_appl_filter (...)
INQUIRE PREDEFINED ASSOCIATION OF TARGET WITH TRAVERSAL RESOURCES	pinq_pred_assoc_targ_trav_res (...)
INQUIRE PREDEFINED ASSOCIATION OF TRAVERSAL RESOURCE WITH TARGET	pinq_pred_assoc_trav_res_targ (...)
INQUIRE PREDEFINED COMPOSITE MEASURE DEFINITION	pinq_pred_composite_meas_def (...)
INQUIRE PREDEFINED EDGE REPRESENTATION FULL	pinq_pred_edge_rep_full (...)
INQUIRE PREDEFINED EXTENDED PATTERN REPRESENTATION	pinq_pred_ext_pat_rep (...)
INQUIRE PREDEFINED HIGHLIGHTING REPRESENTATION	pinq_pred_highl_rep (...)
INQUIRE PREDEFINED IMAGE RESOURCE	pinq_pred_image_res (...)
INQUIRE PREDEFINED LINETYPE DEFINITION	pinq_pred_linetype_def (...)
INQUIRE PREDEFINED MARKER TYPE DEFINITION	pinq_pred_marker_type_def (...)
INQUIRE PREDEFINED POLYLINE REPRESENTATION FULL	pinq_pred_line_rep_full (...)
INQUIRE PREDEFINED POSTING GROUP	pinq_pred_post_grp (...)
INQUIRE PREDEFINED SET MEASURE DEFINITION	pinq_pred_set_meas_def (...)
INQUIRE PREDEFINED TEXTURE REPRESENTATION	pinq_pred_texture_rep (...)
INQUIRE PROJECTION REFERENCE POINT	pinq_proj_ref_point (...)
INQUIRE PROJECTION TYPE	pinq_proj_type (...)
INQUIRE PROJECTION VIEWPORT	pinq_proj_vp (...)
INQUIRE PROJECTION VIEWPORT 3	pinq_proj_vp3 (...)
INQUIRE RENDERING TARGET	pinq_rend_targ (...)
INQUIRE SET DEVICE STATE	pinq_set_st (...)
INQUIRE SET DEVICE STATE 3	pinq_set_st3 (...)
INQUIRE SET FACILITIES	pinq_set_facs (...)
INQUIRE SET MEASURE DEFINITION	pinq_set_meas_def (...)
INQUIRE SET OF GROUPS TO WHICH POSTED	pinq_grps_posted (...)
INQUIRE SET OF WORKSTATIONS TO WHICH DIRECT INTERPRETATION STRUCTURE POSTED	pinq_wss_di_struct_posted (...)
INQUIRE STRING FACILITIES	pinq_string_facs (...)
INQUIRE STROKE FACILITIES	pinq_stroke_facs (...)
INQUIRE TARGET ASSOCIATED WITH TRAVERSAL RESOURCE	pinq_targ_assoc_trav_res (...)
INQUIRE TARGET DISPOSITION	pinq_targ_dispos (...)
INQUIRE TARGET FACILITIES	pinq_targ_facs (...)
INQUIRE TARGET MANIPULATION MODE	pinq_targ_manip_mode (...)

Table 3 - Function names ordered by PHIGS and PHIGS PLUS function name (Continued)

PHIGS and PHIGS PLUS Name	C Name
INQUIRE TARGET STATE	pinq_targ_st (...)
INQUIRE TEXTURE FACILITIES	pinq_texture_facs (...)
INQUIRE TEXTURE MAPPING FACILITIES	pinq_texture_map_facs (...)
INQUIRE TEXTURE REPRESENTATION	pinq_texture_rep (...)
INQUIRE TRANSPARENCY MODE	pinq_transparency_mode (...)
INQUIRE TRANSPARENCY THRESHOLDS	pinq_transparency_thresholds (...)
INQUIRE TRAVERSAL RESOURCE FACILITIES	pinq_trav_res_facs (...)
INQUIRE TRAVERSAL RESOURCES ASSOCIATED WITH TARGET	pinq_trav_res_assoc_targ (...)
INQUIRE VALUATOR FACILITIES	pinq_val_facs (...)
INQUIRE VIEW PLANE DISTANCE	pinq_view_plane_dist (...)
INQUIRE VIEW PLANE NORMAL	pinq_view_plane_norm (...)
INQUIRE VIEW REFERENCE POINT	pinq_view_ref_point (...)
INQUIRE VIEW REFERENCE POINT 3	pinq_view_ref_point3 (...)
INQUIRE VIEW STATUS	pinq_view_status (...)
INQUIRE VIEW UP VECTOR	pinq_view_up_vec (...)
INQUIRE VIEW UP VECTOR 3	pinq_view_up_vec3 (...)
INQUIRE VIEW WINDOW LIMITS	pinq_view_win_limits (...)
INQUIRE WATCH ON ELEMENT RANGE	pinq_watch_elem_range (...)
INQUIRE WATCH RANGE STATE	pinq_watch_range_st (...)
INQUIRE WORKSTATION STATE TABLE LENGTHS HIGHLIGHTING	pinq_ws_st_table_highl (...)
INQUIRE WORKSTATION STATE TABLE LENGTHS TEXTURE	pinq_ws_st_table_texture (...)
INQUIRE X-Y CLIPPING INDICATOR	pinq_xy_clip_indicator (...)
INSTANCE STRUCTURE	pinst_struct (...)
MANIPULATE TRAVERSAL RESOURCE	pmanip_trav_res (...)
MAP DEVICE COORDINATE POINT TO PICK PATHS	pmap_dc_point_to_pick_paths (...)
MAP DEVICE COORDINATES TO WINDOW SYSTEM COORDINATES	pmap_dc_to_wsc (...)
MAP DEVICE COORDINATES TO WORLD COORDINATES	pmap_dc_to_wc (...)
MAP WINDOW SYSTEM COORDINATES TO DEVICE COORDINATES	pmap_wsc_to_dc (...)
MARK MULTI-PASS COMPLETION	pmark_multi_pass_compl (...)
MARK MULTI-PASS START	pmark_multi_pass_start (...)
MARK PASS COMPLETION	pmark_pass_compl (...)
MARK PASS START	pmark_pass_start (...)
MOVE ELEMENT FROM STRUCTURE	pmove_elem_struct (...)
MOVE ELEMENT RANGE FROM STRUCTURE	pmove_elem_range_struct (...)
MOVE ELEMENTS BETWEEN LABELS FROM STRUCTURE	pmove_elems_between_labels_struct (...)
OPEN DIRECT INTERPRETATION STRUCTURE	popen_di_struct (...)
POP STATE	ppop_st (...)
POST DIRECT INTERPRETATION STRUCTURE	ppost_di_struct (...)
POST DIRECT INTERPRETATION STRUCTURE TO POSTING GROUP	ppost_di_struct_to_grp (...)
POST STRUCTURE TO GROUP	ppost_struct_to_grp (...)
PUSH STATE	ppush_st (...)

Table 3 - Function names ordered by PHIGS and PHIGS PLUS function name (Continued)

PHIGS and PHIGS PLUS Name	C Name
REDRAW ALL STRUCTURES FROM POSTING GROUP	predraw_all_structs_from_grp (...)
REDRAW ALL STRUCTURES FROM POSTING GROUP ON TARGET	predraw_all_from_grp_on_targ (...)
REDRAW ALL STRUCTURES ON TARGET	predraw_all_structs_on_targ (...)
RENEW DIRECT INTERPRETATION STATE	prenew_di_state (...)
REQUEST COMPOSITE	preq_composite (...)
REQUEST COMPOSITE 3	preq_composite3 (...)
REQUEST SET	preq_set (...)
REQUEST SET 3	preq_set3 (...)
RESET ALL TRAVERSAL RESOURCES	preset_all_trav_res (...)
RETRIEVE NUMBER OF PASSES REQUIRED	pret_num_passes_req (...)
RETRIEVE WINDOW SYSTEM COLOUR	pret_window_system_colr (...)
SAMPLE COMPOSITE	psample_composite (...)
SAMPLE COMPOSITE 3	psample_composite3 (...)
SAMPLE SET	psample_set (...)
SAMPLE SET 3	psample_set3 (...)
SET ACTIVE TEXTURES	pset_active_textures (...)
SET ALPHA DATA SELECTION INDEX	pset_alpha_data_sel_ind (...)
SET ALPHA SOURCE SELECTOR	pset_alpha_src_sel (...)
SET APPLICATION FILTER	pset_appl_filter (...)
SET APPLICATION INTEGER	pset_appl_int (...)
SET APPLICATION REAL	pset_appl_real (...)
SET BACK ACTIVE TEXTURES	pset_back_active_textures (...)
SET BACK CLIPPING INDICATOR	pset_back_clip_indicator (...)
SET BACK PLANE DISTANCE	pset_back_plane_dist (...)
SET BACK TRANSPARENCY	pset_back_transparency (...)
SET COMPOSITE MODE	pset_composite_mode (...)
SET COMPOSITE PICK FILTER	pset_composite_pick_filter (...)
SET CONDITION FLAGS	pset_cond_flags (...)
SET CONDITION FLAGS FROM TESTS	pset_cond_flags_from_tests (...)
SET DEPTH CUE REPRESENTATION MASK	pset_depth_cue_rep_mask (...)
SET DEVICE COORDINATE CLIP REGIONS	pset_dc_clip_regions (...)
SET DEVICE COORDINATE CLIP REGIONS 3	pset_dc_clip_regions3 (...)
SET DIRECT INTERPRETATION MODE	pset_di_mode (...)
SET DIRECT INTERPRETATION PICK CORRELATION POINT	pset_di_pick_corr_point (...)
SET DIRECT INTERPRETATION PICK CORRELATION POINT 3	pset_di_pick_corr_point3 (...)
SET DIRECT INTERPRETATION PICK FILTER	pset_di_pick_filter (...)
SET DISPLAY TARGET	pset_disp_targ (...)
SET EDGE CAP	pset_edgcap (...)
SET EDGE JOIN	pset_edgejoin (...)
SET EDGEMITRE LIMIT	pset_edgemitre_limit (...)
SET EDGE REPRESENTATION FULL	pset_edge_rep_full (...)
SET EDGE REPRESENTATION MASK	pset_edge_rep_mask (...)
SET EDGETYPE ADAPTABILITY	pset_edgetype_adapt (...)
SET EDGETYPE CONTINUITY	pset_edgetype_cont (...)

Table 3 - Function names ordered by PHIGS and PHIGS PLUS function name (Continued)

PHIGS and PHIGS PLUS Name	C Name
SET EDGETYPE OFFSET	pset_edgetype_offset (...)
SET EXTENDED PATTERN REPRESENTATION	pset_ext_pat_rep (...)
SET FRONT CLIPPING INDICATOR	pset_front_clip_indicator (...)
SET FRONT PLANE DISTANCE	pset_front_plane_dist (...)
SET HIGHLIGHTING INDEX	pset_highl_ind (...)
SET HIGHLIGHTING METHOD	pset_highl_method (...)
SET HIGHLIGHTING REPRESENTATION	pset_highl_rep (...)
SET INTERIOR REPRESENTATION MASK	pset_int_rep_mask (...)
SET LINECAP	pset_linecap (...)
SET LINEJOIN	pset_linejoin (...)
SET LINEMITRE LIMIT	pset_linemitre_limit (...)
SET LINETYPE ADAPTABILITY	pset_linetype_adapt (...)
SET LINETYPE CONTINUITY	pset_linetype_cont (...)
SET LINETYPE OFFSET	pset_linetype_offset (...)
SET PATTERN REPRESENTATION MASK	pset_pat_rep_mask (...)
SET PICK MAPPING DATA	pset_pick_mapping_data (...)
SET POLYLINE REPRESENTATION FULL	pset_line_rep_full (...)
SET POLYLINE REPRESENTATION MASK	pset_line_rep_mask (...)
SET POLYMARKER REPRESENTATION MASK	pset_marker_rep_mask (...)
SET POSTING GROUP BACKGROUND METHOD	pset_post_grp_backg_method (...)
SET POSTING GROUP BACKGROUND STYLE	pset_post_grp_backg_style (...)
SET POSTING GROUP BORDER INDEX	pset_post_grp_border_ind (...)
SET POSTING GROUP BORDER INDICATOR	pset_post_grp_border_indicator (...)
SET POSTING GROUP PRIORITY	pset_post_grp_priority (...)
SET POSTING GROUP STATUS	pset_post_grp_status (...)
SET PROJECTION REFERENCE POINT	pset_proj_ref_point (...)
SET PROJECTION TYPE	pset_proj_type (...)
SET PROJECTION VIEWPORT	pset_proj_vp (...)
SET PROJECTION VIEWPORT 3	pset_proj_vp3 (...)
SET REFLECTANCE REPRESENTATION MASK	pset_refl_rep_mask (...)
SET RENDERING TARGET	pset_rend_targ (...)
SET SET MODE	pset_set_mode (...)
SET SET PICK FILTER	pset_set_pick_filter (...)
SET STATE OF VISUAL REPRESENTATION	pset_st_visual_rep (...)
SET TARGET DISPOSITION	pset_targ_dispos (...)
SET TARGET MANIPULATION MODE	pset_targ_manip_mode (...)
SET TARGET STATE OF VISUAL REPRESENTATION	pset_targ_st_visual_rep (...)
SET TEXT REPRESENTATION MASK	pset_text_rep_mask (...)
SET TEXTURE BINDING	pset_texture_binding (...)
SET TEXTURE COMPOSITION	pset_texture_composition (...)
SET TEXTURE PARAMETRIZATION	pset_texture_param (...)
SET TEXTURE PERSPECTIVE CORRECTION	pset_texture_perspect_corr (...)
SET TEXTURE REPRESENTATION	pset_texture_rep (...)
SET TEXTURE REPRESENTATION MASK	pset_texture_rep_mask (...)
SET TEXTURE RESOURCE OPTIMIZATION HEURISTICS	pset_texture_res_opt_heur (...)
SET TEXTURE SAMPLING	pset_texture_sampling (...)

Table 3 - Function names ordered by PHIGS and PHIGS PLUS function name (Continued)

PHIGS and PHIGS PLUS Name	C Name
SET TEXTURE SAMPLING FREQUENCY	pset_texture_sampling_freq (...)
SET TRANSPARENCY	pset_transparency (...)
SET TRANSPARENCY MODE	pset_transparency_mode (...)
SET TRANSPARENCY THRESHOLDS	pset_transparency_thresholds (...)
SET VIEW PLANE DISTANCE	pset_view_plane_dist (...)
SET VIEW PLANE NORMAL	pset_view_plane_norm (...)
SET VIEW REFERENCE POINT	pset_view_ref_point (...)
SET VIEW REFERENCE POINT 3	pset_view_ref_point3 (...)
SET VIEW UP VECTOR	pset_view_up_vec (...)
SET VIEW UP VECTOR 3	pset_view_up_vec3 (...)
SET VIEW WINDOW LIMITS	pset_view_win_limits (...)
SET WATCH ON ELEMENT RANGE	pset_watch_on_elem_range (...)
SET X-Y CLIPPING INDICATOR	pset_xy_clip_indicator (...)
TRANSFER DIRECT INTERPRETATION PICK SET	ptrans_di_pick_set (...)
UNDEFINE CHOICE	pundefine_choice (...)
UNDEFINE COMPOSITE	pundefine_composite (...)
UNDEFINE LOCATOR	pundefine_locator (...)
UNDEFINE PICK	pundefine_pick (...)
UNDEFINE POSTING GROUP	pundefine_post_grp (...)
UNDEFINE SET	pundefine_set (...)
UNDEFINE STRING	pundefine_string (...)
UNDEFINE STROKE	pundefine_stroke (...)
UNDEFINE VALUATOR	pundefine_valuator (...)
UNPOST ALL STRUCTURES FROM GROUP	punpost_all_structs_from_grp (...)
UNPOST DIRECT INTERPRETATION STRUCTURE	punpost_di_struct (...)
UNPOST STRUCTURES FROM GROUPS	punpost_structs_from_grps (...)
UPDATE TARGET	pupd_targ (...)
UPDATE VIEW REPRESENTATION	pupd_view_rep (...)
WORKSTATION TYPE CREATE	pws_type_create (...)
WORKSTATION TYPE DESTROY	pws_type_destroy (...)
WORKSTATION TYPE GET	pws_type_get (...)
WORKSTATION TYPE SET	pws_type_set (...)

”

Page 27

5 C PHIGS type definitions

Change the clause heading to “C Basic PHIGS profile type definitions”.

5.1 Mapping of PHIGS data types

Change the subclause heading to “Mapping of Basic PHIGS profile data types”.

The following text replaces the text of the first paragraph:

“The *Basic PHIGS profile* specifies a set of abstract data types. Table 4 gives the mapping from those data types defined in the *Basic PHIGS profile*.”

Change the table title to “**Table - 4 Mapping of Basic PHIGS profile data types to C**”.

Change the left table heading to “**Basic PHIGS profile data type**”.

Page 27

5.2 Environmental type definitions

Append the phrase “of all profiles” to the second sentence of the first paragraph.

Page 28

5.3 Implementation dependent type definitions

Change the subclause heading to “**Implementation dependent Basic PHIGS profile type definitions**”.

The following text replaces the phrases of the “xxx” description concerned with the escape data records.

‘, “escape_in” for ESCAPE input data records, “escape_out” for ESCAPE output data records, “targ_op” for target operation types, “trav_res_op” for traversal resource operations, “in_type” for new classes of input measures’

Pages 29 and 30

The following type definitions replace the Pchoice_data and Pchoice_data3 type definitions:

“

Pchoice_data **CHOICE DATA RECORD**

```
typedef struct {
    union Pchoice_pets {
        struct Pchoice_pet_other {
            Pint        unused;
        } pet_other; /* When no echo-specific data is required */
        struct Pchoice_pet_r1{
            . . .      /* impl. dependent */
        } pet_r1; /* For PET 1 */
        struct Pchoice_pet_r2 {
            Pint        num_prompts; /* number of prompts*/
            Ppr_switch  *prompts;    /* array of prompts*/
            . . .          /* impl. defined*/
        } pet_r2; /* For PET 2 */
    }
}
```

```

struct Pchoice_pet_r3 {
    Pint      num_strings;      /* number of choice strings*/
    char      **strings;        /* array of choice strings*/
    . . .      /* impl. defined*/
} pet_r3; /* For PET 3 */
struct Pchoice_pet_r4 {
    Pint      num_strings;      /* number of alternatives*/
    char      **strings;        /* array of strings*/
    . . .      /* impl. defined*/
} pet_r4; /* For PET 4 */
struct Pchoice_pet_r5 {
    Pint      struct_id;        /* structure identifier*/
    Pint      num_pick_ids;      /* number of alternatives*/
    Pint      *pick_ids;        /* array of pick identifiers*/
    . . .      /* impl. defined*/
} pet_r5; /* For PET 5 */
. . .      /* data for impl. defined pets */
} pets;

union Pchoice_measure_data {
    struct Pchoice_meas_other {
        Pint      unused;
    } meas_other; /* When no measure-specific data is required */
    . . .      /* data for impl. defined measure processes */
} measure_data;

union Pchoice_trigger_data {
    struct Pchoice_trig_other {
        Pint      unused;
    } trig_other; /* When no trigger-specific data is required */
    . . .      /* data for impl. defined trigger processes */
} trigger_data;

union Pchoice_ack_data {
    struct Pchoice_ack_other {
        Pint      unused;
    } ack_other; /* When no ack.-specific data is required */
    . . .      /* data for impl. defined ack. processes */
} acknowledgement_data;
} Pchoice_data;

```

Pchoice_data3 CHOICE DATA RECORD 3

```

typedef struct {
    union Pchoice3_pets {
        struct Pchoice3_pet_other {
            Pint        unused;
        } pet_other; /* When no echo-specific data is required */
        struct Pchoice3_pet_r1{
            . . . . . /* impl. dependent*/
        } pet_r1; /* For PET 1 */
        struct Pchoice3_pet_r2 {
            Pint        num_prompts; /* number of prompts*/
            Ppr_switch*prompts; /* array of prompts*/
            . . . . . /* impl. defined*/
        } pet_r2; /* For PET 2 */
        struct Pchoice3_pet_r3 {
            Pint        num_strings; /* number of choice strings*/
            char        **strings; /* array of choice strings*/
            . . . . . /* impl. defined*/
        } pet_r3; /* For PET 3 */
        struct Pchoice3_pet_r4 {
            Pint        num_strings; /* number of alternatives*/
            char        **strings; /* array of strings*/
            . . . . . /* impl. defined*/
        } pet_r4; /* For PET 4 */
        struct Pchoices3_pet_r5 {
            Pint        struct_id; /* structure identifier*/
            Pint        num_pick_ids; /* number of alternatives*/
            Pint        *pick_ids; /* array of pick identifiers*/
            . . . . . /* impl. defined*/
        } pet_r5; /* For PET 5 */
        . . . . . /* data for impl. defined pets */
    } pets;
    union Pchoice3_measure_data {
        struct Pchoice_meas_other {
            Pint        unused;
        } meas_other; /* When no measure-specific data is required */
        . . . . . /* data for impl. defined measure processes */
    } measure_data;
}

```

```

union Pchoice3_trigger_data {
    struct Pchoice3_trig_other {
        Pint        unused;
    } trig_other; /* When no trigger-specific data is required */
    . . .        /* data for impl. defined trigger processes */
} trigger_data;

union Pchoice3_ack_data {
    struct Pchoice3_ack_other {
        Pint        unused;
    } ack_other; /* When no ack.-specific data is required */
    . . .        /* data for impl. defined ack. processes */
} acknowledgement_data;

} Pchoice_data3;”

```

Pages 33 and 34

The following type definition replaces the definitions of *Ploc_data* and *Ploc_data3* respectively:

“

Ploc_data LOCATOR DATA RECORD

```

typedef struct {
    union Ploc_pets {
        struct Ploc_pet_other {
            Pint        unused;
        } pet_other; /* When no echo-specific data is required */
        struct Ploc_pet_r1 {
            . . .        /* impl. dependent*/
        } pet_r1; /* Supports standard PET 1 */
        struct Ploc_pet_r2 {
            . . .        /* impl. dependent*/
        } pet_r2; /* Supports standard PET 2 */
        struct Ploc_pet_r3 {
            . . .        /* impl. dependent*/
        } pet_r3; /* Supports standard PET 3 */
        struct Ploc_pet_r4 {
            Pline_attrs line_attrs; /* polyline attributes*/
            . . .        /* impl. dependent*/
        } pet_r4; /* Supports standard PET 4 */
    }
}

```

```

struct Ploc_pet_r5 {
    Pline_fill_ctrl_flag line_fill_ctrl_flag; /* ctrl. flag*/
    union Ploc_attrs {
        Pline_attrs line_attrs; /* polyline attributes*/
        Pint_attrs int_attrs; /* interior attributes*/
        struct Ploc_fill_set {
            Pint_attrs int_attrs; /* interior attributes*/
            Pedge_attrs edge_attrs; /* edge attributes*/
        } fill_set;
    } attrs;
    . . . /* data for impl. defined PET's */
} pet_r5; /* Supports standard PET 5 */
struct Ploc_pet_r6 {
    . . . /* impl. dependent*/
} pet_r6; /* Supports standard PET 6 */
. . . /* data for impl. defined PET's */
} pets;

union Ploc_measure_data {
    struct Ploc_meas_other {
        Pint unused;
    } meas_other; /* When no measure-specific data is required */
    . . . /* data for impl. defined measure processes */
} measure_data;

union Ploc_trigger_data{
    struct Ploc_trig_other {
        Pint unused;
    } trig_other; /* When no trigger-specific data is required */
    . . . /* data for impl. defined trigger processes */
} trigger_data;

union Ploc_ack_data {
    struct Ploc_ack_other {
        Pint unused;
    } ack_other; /* When no ack.-specific data is required */
    . . . /* data for impl. defined ack. processes */
} acknowledgement_data;
} Ploc_data;

```

Ploc_data3 LOCATOR DATA RECORD 3

```

typedef struct {
    union Ploc3_pets {
        struct Ploc3_pet_other {
            Pint        unused;
        } pet_other;    /* When no echo-specific data is required */
        struct Ploc3_pet_r1 {
            . . .        /* impl. dependent*/
        } pet_r1;       /* Supports standard PET 1 */
        struct Ploc3_pet_r2 {
            . . .        /* impl. dependent*/
        } pet_r2;       /* Supports standard PET 2 */
        struct Ploc3_pet_r3 {
            . . .        /* impl. dependent*/
        } pet_r3;       /* Supports standard PET 3 */
        struct Ploc3_pet_r4 {
            Pline_attrs line_attrs;    /* polyline attributes*/
            . . .        /* impl. dependent*/
        } pet_r4;       /* Supports standard PET 4 */
        struct Ploc3_pet_r5 {
            Pline_fill_ctrl_flag line_fill_ctrl_flag; /* ctrl. flag*/
            union Ploc3_attrs {
                Pline_attrs line_attrs; /* polyline attributes*/
                Pint_attrs int_attrs;   /* interior attributes*/
                struct Ploc3_fill_set {
                    Pint_attrs int_attrs; /* interior attributes*/
                    Pedge_attrs edge_attrs; /* edge attributes*/
                } fill_set;
            } attrs;
            . . .        /* data for impl. defined PET's */
        } pet_r5;       /* Supports standard PET 5 */
        struct Ploc3_pet_r6 {
            . . .        /* impl. dependent*/
        } pet_r6;       /* Supports standard PET 6 */
        . . .        /* data for impl. defined PET's */
    } pets;

    union Ploc3_measure_data {
        struct Ploc3_meas_other {
            Pint        unused;
        } meas_other; /* When no measure-specific data is required */
    };
}

```

```

        . . .      /* data for impl. defined measure processes */
    } measure_data;
    union Ploc3_trigger_data {
        struct Ploc3_trig_other {
            Pint      unused;
        } trig_other; /* When no trigger-specific data is required */
        . . .      /* data for impl. defined trigger processes */
    } trigger_data;
    union Ploc3_ack_data {
        struct Ploc3_ack_other {
            Pint      unused;
        } ack_other; /* When no ack.-specific data is required */
        . . .      /* data for impl. defined ack. processes */
    } acknowledgement_data;
} Ploc_data3;”

```

Pages 35 through 38

The following type definitions replace the corresponding definitions respectively:

“

Ppick_data **PICK DATA RECORD**

```

typedef struct {
    union Ppick_pets {
        struct Ppick_pet_other {
            Pint      unused;
        } pet_other; /* When no echo-specific data is required */
        struct Ppick_pet_r1 {
            . . .      /* impl. dependent*/
        } pet_r1; /* For PET 1 */
        . . .      /* data for impl. defined pets */
        struct Ppick_pet_r2 {
            . . .      /* implementation dependent*/
        } pet_r2; /* For PET 2 */
        struct Ppick_pet_r3 {
            . . .      /* implementation dependent*/
        } pet_r3; /* For PET 3 */
    }
}

```

```

    struct Ppick_pet_r4 {
        Pint        highl_ind;          /* highlighting index*/
        . . . . .                      /* impl. dependent*/
    } pet_r4; /* For PET 4 */
    struct Ppick_pet_r5 {
        Pint        highl_ind;          /* highlighting index*/
        . . . . .                      /* impl. dependent*/
    } pet_r5; /* For PET 5 */
    struct Ppick_pet_r6 {
        Pint        highl_ind;          /* highlighting index*/
        . . . . .                      /* impl. dependent*/
    } pet_r6; /* For PET 6 */
    . . . . .                          /* implementation defined PET's*/
} pets;

union Ppick_measure_data {
    struct Ppick_meas_other {
        Pint        unused;
    } meas_other; /* When no measure-specific data is required */
    . . . . .    /* data for impl. defined measure processes */
} measure_data;

union Ppick_trigger_data {
    struct Ppick_trig_other {
        Pint        unused;
    } trig_other; /* When no trigger-specific data is required */
    . . . . .    /* data for impl. defined pick processes */
} trigger_data;

union Ppick_ack_data {
    struct Ppick_ack_other {
        Pint        unused;
    } ack_other; /* When no ack.-specific data is required */
    . . . . .    /* data for impl. defined ack. processes */
} acknowledgement_data;
} Ppick_data;

```

Ppick_data3 PICK DATA RECORD 3

```

typedef struct {
    union Ppick3_pets {
        struct Ppick3_pet_other {
            Pint        unused;
        } pet_other; /* When no echo-specific data is required */
        struct Ppick3_pet_r1 {
            . . .
        } pet_r1; /* For PET 1 */
        struct Ppick3_pet_r2 {
            . . .
        } pet_r2; /* For PET 2 */
        struct Ppick3_pet_r3 {
            . . .
        } pet_r3; /* For PET 3 */
        struct Ppick3_pet_r4 {
            Pint        highl_ind;
            . . .
        } pet_r4; /* For PET 4 */
        struct Ppick3_pet_r5 {
            Pint        highl_ind;
            . . .
        } pet_r5; /* For PET 5 */
        struct Ppick3_pet_r6 {
            Pint        highl_ind;
            . . .
        } pet_r6;
        . . . /* data for impl. defined pets */
    } pets; /* For PET 6 */
    union Ppick3_measure_data {
        struct Ppick3_meas_other {
            Pint        unused;
        } meas_other; /* When no measure-specific data is required */
        . . . /* data for impl. defined measure processes */
    } measure_data;
    union Ppick3_trigger_data {
        struct Ppick3_trig_other {
            Pint        unused;
        } trig_other; /* When no trigger-specific data is required */
    }

```

```

    . . .      /* data for impl. defined pick processes */
} trigger_data;
union Ppick3_ack_data {
    struct Ppick3_ack_other {
        Pint      unused;
    } ack_other; /* When no ack.-specific data is required */
    . . .      /* data for impl. defined ack. processes */
} acknowledgement_data;
} Ppick_data3;

```

Pstring_data **STRING DATA RECORD**

```

typedef struct {
    Pint          in_buf_size; /* input buffer size*/
    Pint          init_pos;    /* initial editing position*/
    union Pstring_pets {
        struct Pstring_pet_other {
            Pint      unused;
        } pet_other; /* When no echo-specific data is required */
        struct Pstring_pet_r1{
            . . .      /* impl. dependent*/
        } pet_r1; /* For PET 1 */
        . . .      /* data for impl. defined pets */
    } pets;
    union Pstring_measure_data {
        struct Pstring_meas_other {
            Pint      unused;
        } meas_other; /* When no measure-specific data is required */
        . . .      /* data for impl. defined measure processes */
    } measure_data;
    union Pstring_trigger_data {
        struct Pstring_trig_other {
            Pint      unused;
        } trig_other; /* When no trigger-specific data is required */
        . . .      /* data for impl. defined trigger processes */
    } trigger_data;
}

```

```

union Pstring_ack_data {
    struct Pstring_ack_other {
        Pint        unused;
    } ack_other; /* When no ack.-specific data is required */
    . . .        /* data for impl. defined ack. processes */
} acknowledgement_data;
} Pstring_data;

```

Pstring_data3 STRING DATA RECORD 3

```

typedef struct {
    Pint        in_buf_size; /* input buffer size*/
    Pint        init_pos;    /* initial editing position*/
    union Pstring3_pets {
        struct Pstring_pet_other {
            Pint        unused;
        } pet_other; /* When no echo-specific data is required */
        struct Pstring3_pet_r1{
            . . .        /* impl. dependent*/
        } pet_r1; /* For PET 1 */
        . . .        /* data for impl. defined pets */
    } pets;
    union Pstring3_measure_data {
        struct Pstring3_meas_other {
            Pint        unused;
        } meas_other; /* When no measure-specific data is required */
        . . .        /* data for impl. defined measure processes */
    } measure_data;
    union Pstring3_trigger_data {
        struct Pstring3_trig_other {
            Pint        unused;
        } trig_other; /* When no trigger-specific data is required */
        . . .        /* data for impl. defined trigger processes */
    } trigger_data;
    union Pstring3_ack_data {
        struct Pstring3_ack_other {
            Pint        unused;
        } ack_other; /* When no ack.-specific data is required */
    }
}

```

```

    . . .      /* data for impl. defined ack. processes */
} acknowledgement_data;

} Pstring_data3;

```

Pstroke_data STROKE DATA RECORD

```

typedef struct {
    Pint          buffer_size; /* input buffer size */
    Pint          init_pos;    /* initial editing position */
    Pfloat        x_interval;  /* x trigger interval */
    Pfloat        y_interval;  /* y trigger interval */
    Pfloat        time_interval; /* time trigger interval */
    union {
        struct Pstroke_pet_other {
            Pint          unused;
        } pet_other; /* When no echo-specific data is required */
        struct Pstroke_pet_r1 {
            . . .      /* impl. dependent */
        } pet_r1; /* For std PET 1 */
        struct Pstroke_pet_r2 {
            . . .      /* impl. dependent */
        } pet_r2; /* For std PET 2 */
        struct Pstroke_pet_r3 {
            Pmarker_attrs marker_attrs; /* marker attributes */
            . . .      /* impl. dependent */
        } pet_r3; /* For std PET 3 */
        struct Pstroke_pet_r4 {
            Pline_attrs line_attrs; /* line attributes */
            . . .      /* impl. dependent */
        } pet_r4; /* For std PET 4 */
        . . .      /* data for impl. defined PET's */
    } pets;
    union Pstroke_measure_data {
        struct Pstroke_meas_other {
            Pint          unused;
        } meas_other; /* When no measure-specific data is required */
        . . .      /* data for impl. defined measure processes */
    } measure_data;
}

```

```

union Pstroke_trigger_data {
    struct Pstroke_trig_other {
        Pint        unused;
    } trig_other; /* When no trigger-specific data is required */
    . . .        /* data for impl. defined trigger processes */
} trigger_data;
union Pstroke_ack_data {
    struct Pstroke_ack_other {
        Pint        unused;
    } ack_other; /* When no ack.-specific data is required */
    . . .        /* data for impl. defined ack. processes */
} acknowledgement_data;
} Pstroke_data;

```

Pstroke_data3 STROKE DATA RECORD 3

```

typedef struct {
    Pint        in_buf_size; /* input buffer size*/
    Pint        init_pos;    /* initial editing position*/
    Pfloat      x_interval;  /* x trigger interval*/
    Pfloat      y_interval;  /* y trigger interval*/
    Pfloat      z_interval;  /* z trigger interval*/
    Pfloat      time_interval; /* time trigger interval*/
    union Pstroke3_pets {
        struct Pstroke3_pet_other {
            Pint        unused;
        } pet_other; /* When no echo-specific data is required */
        struct Pstroke3_pet_r1 {
            . . .        /* impl. dependent*/
        } pet_r1; /* For std PET 1 */
        struct Pstroke3_pet_r2 {
            . . .        /* impl. dependent */
        } pet_r2; /* For std PET 2 */
        struct Pstroke3_pet_r3 {
            Pmarker_attrs marker_attrs; /* marker attributes*/
            . . .        /* impl. dependent*/
        } pet_r3; /* For std PET 3 */
    }
}

```

```

    struct Pstroke3_pet_r4 {
        Pline_attrs line_attrs;    /* line attributes*/
        . . .                      /* impl. dependent*/
    } pet_r4; /* For std PET 4 */
    . . . /* data for impl. defined PET's */
} pets;

union Pstroke3_measure_data {
    struct Pstroke3_meas_other {
        Pint unused;
    } meas_other; /* When no measure-specific data is required */
    . . . /* data for impl. defined measure processes */
} measure_data;

union Pstroke3_trigger_data {
    struct Pstroke3_trig_other {
        Pint unused;
    } trig_other; /* When no trigger-specific data is required */
    . . . /* data for impl. defined trigger processes */
} trigger_data;

union Pstroke3_ack_data {
    struct Pstroke3_ack_other {
        Pint unused;
    } ack_other; /* When no ack.-specific data is required */
    . . . /* data for impl. defined ack. processes */
} acknowledgement_data;
} Pstroke_data3;

```

Pval_data VALUATOR DATA RECORD

```

typedef struct {
    Pfloat low; /* Low value of valuator range*/
    Pfloat high; /* High value of valuator range*/
    union Pval_pets {
        struct Pval_pet_other {
            Pint unused;
        } pet_other; /* When no echo-specific data is required */
        . . . /* data for impl. defined pets */
    } pets;
}

```

```

union Pval_measure_data {
    struct Pval_measure_other {
        Pint        unused;
    } meas_other; /* When no measure-specific data is required */
    . . .        /* data for impl. defined measure processes */
} measure_data;
union Pval_trigger_data {
    struct Pval_trig_other {
        Pint        unused;
    } trig_other; /* When no trigger-specific data is required */
    . . .        /* data for impl. defined trigger processes */
} trigger_data;
union Pval_ack_data {
    struct Pval_ack_other {
        Pint        unused;
    } ack_other; /* When no ack.-specific data is required */
    . . .        /* data for impl. defined ack. processes */
} acknowledgement_data;
} Pval_data;

```

Pval_data3 VALUATOR DATA RECORD 3

```

typedef struct {
    Pfloat        low;           /* Low value of valuator range*/
    Pfloat        high;          /* High value of valuator range*/
    union Pval3_pets {
        struct Pval3_pet_other {
            Pint        unused;
        } pet_other; /* When no echo-specific data is required */
        . . .        /* data for impl. defined pets */
    } pets;
    union Pval3_measure_data {
        struct Pval3_measure_other {
            Pint        unused;
        } meas_other; /* When no measure-specific data is required */
        . . .        /* data for impl. defined measure processes */
    } measure_data;
}

```

```

union Pval3_trigger_data {
    struct Pval3_trig_other {
        Pint        unused;
    } trig_other; /* When no trigger-specific data is required */
    . . .        /* data for impl. defined trigger processes */
} trigger_data;
union Pval3_ack_data {
    struct Pval3_ack_other {
        Pint        unused;
    } ack_other; /* When no ack.-specific data is required */
    . . .        /* data for impl. defined ack. processes */
} acknowledgement_data;
} Pval_data3;”

```

Page 38

5.4 Implementation independent type definitions

Change the subclause heading to “**Implementation independent Basic PHIGS profile type definitions**”.

Page 65

The following text replaces item PSTRUCT_ST_STOP in the definition of Pstruct_st:

```

“PSTRUCT_ST_STOP,
 PSTRUCT_ST_DISO”

```

Page 73

6 C PHIGS macro definitions

Change the clause heading to “**C Basic PHIGS profile macro definitions**”.

Page 83

6.3 Linetypes

6.3.1 Linetypes

The following entry is appended:

```

“
#define PLINE_DASH_DOT_DOT
(5)”

```

Page 76

6.4 Error codes

The following definition replaces error 5:

```
“
#define PE_NOT_STOP          (5)    /* Ignoring function, function requires
                                     state (PHOP,*,STOP | DISO,*) */”
```

Page 85

7 C PHIGS functions

Change the clause heading to “C Basic PHIGS profile functions”.

Page 17 (ISO/IEC 9593-4:1992/Amd. 1:1994)

8 C PHIGS PLUS type definitions

Change the subclause heading to “C PHIGS PLUS profile type definitions”.

8.1 Mapping of PHIGS PLUS data types

Change the clause heading to “Mapping of PHIGS PLUS profile data types”.

The following text replaces the text of the first paragraph:

“The PHIGS PLUS profile specifies a set of abstract data types beyond the types defined in the Basic PHIGS profile. Table 4 gives the mapping from those additional data types defined in the PHIGS PLUS profile.”

Change the table title to “Table - 4 Mapping of PHIGS PLUS profile data types to C”.

Change the left table heading to “PHIGS PLUS profile data type”.

Page 18 (ISO/IEC 9593-4:1992/Amd. 1:1994)

8.2 Modifications to PHIGS data types

Change the subclause heading to “Modifications to Basic PHIGS profile data types”.

Page 24 (ISO/IEC 9593-4:1992/Amd. 1:1994)

8.3 Implementation dependent PHIGS PLUS type definitions

Change the subclause heading to “Implementation dependent PHIGS PLUS profile type definitions”.

Page 34 (ISO/IEC 9593-4:1992/Amd. 1:1994)

8.4 Implementation independent PHIGS PLUS type definitions

Change the subclause heading to “Implementation independent PHIGS PLUS profile type definitions”.

Page 56 (ISO/IEC 9593-4:1992/Amd. 1:1994)

9 C PHIGS PLUS macro definitions

Change the clause heading to “C PHIGS PLUS profile macro definitions”.

Page 63 (ISO/IEC 9593-4:1992/Amd. 1:1994)

10 C PHIGS PLUS functions

Change the clause heading to “C PHIGS PLUS profile functions”.

IECNORM.COM : Click to view the full PDF of ISO/IEC 9593-4:1991/Amd 2:1998

Page 95 (ISO/IEC 9593-4:1992/Amd. 2:1994)

The following new clauses are inserted following clause 10.

“

11 C Full PHIGS profile type definitions

11.1 Mapping of Full PHIGS profile data types

The Full PHIGS profile specifies a set of abstract data types beyond the types defined in the PHIGS PLUS profile. Table 4 gives the mapping from those additional data types defined in the Full PHIGS profile.

Table 4 - Mapping of Full PHIGS profile data types to C

PHIGS data type		C binding data type
@t	location of t	*t
AP	acknowledgement process	Pack_process
BIT	bit	unsigned int:1
CF	configuration setting list	Pconfig_settings
CFT	condition flag test	Pcond_test
EP	echo process	Pecho_process
M	measure	Pmeasure
MD	marker descriptor	Pmarker_desc
MP	measure process	Pmeas_process
MS	measure set	Pmeasure_set
TA	target address	Ptarg_addr
TO	target operation	Ptarg_op
TP	trigger process	Ptrig_process
TR	traversal resource	Ptrav_res

11.2 Modifications to *Basic PHIGS profile* type definitions

Paspect ASPECT

```
typedef enum {
    /* start of PHIGS enumerations */
    ...,
    /* end of PHIGS enumerations */
    /* start of PHIGS PLUS enumerations */
    ...,
    /* end of PHIGS PLUS enumerations */
    /* start of PHIGS FULL enumerations */
    PASPECT_HIGHL_METHOD
    /* end of PHIGS FULL enumerations */
} Paspect;
```

Pcolor_rep COLOUR REPRESENTATION

```
typedef union {
    /* start of Basic PHIGS union members */
    Prgb      rgb;      /* RGB colour specification */
    Pcielvuv  cielvuv; /* CIE L*u*v* colour specification */
    Phls      hls;      /* HLS colour specification */
    Phsv      hsv;      /* HSV colour specification */
    /* end of Basic PHIGS union members */
    /* start of Full PHIGS union members */
    Prgba     rgba;     /* RGB specification with alpha */
    Pcieluva  cieluva; /* CIE L*u*v* colour specification with alpha */
    Phlsa     hlsa;     /* HLS colour specification with alpha */
    Phsva     hsva;     /* HSV colour specification with alpha */
    /* end of Full PHIGS union members */
    ...           /* implementation defined */
} Pcolor_rep;
```

Pelem_data ELEMENT DATA

```
typedef union {
    /* start of Basic PHIGS element data */
    ...,
    /* end of Basic PHIGS element data */
}
```

```

/* start of PHIGS PLUS element data */
...
/* end of PHIGS PLUS element data */
/* start of Full PHIGS element data */
struct Pappl_int {
    Pint    integer_id;    /* application integer identifier    */
    Pint    value;        /* value for application integer    */
} appl_int;
struct Pappl_real {
    Pint    real_id;      /* application real identifier    */
    Pfloat  value;        /* value for application real    */
} appl_real;
struct Pcircle3 {
    Ppoint3  center_point; /* center point    */
    Pfloat   radius;       /* radius    */
    Pvec3    ref_vecs[2];  /* reference vectors    */
} circle3;
struct Pcircle {
    Ppoint   center_point; /* center point    */
    Pfloat   radius;       /* radius    */
} circle;
struct Pcircular_arc3 {
    Ppoint3  center_point; /* center point    */
    Pfloat   radius;       /* radius    */
    Pvec3    ref_vecs[2];  /* reference vectors    */
    Pfloat   start;        /* start angle    */
    Pfloat   end;          /* end angle    */
} circular_arc3;
struct Pcircular_arc {
    Ppoint   center_point; /* center point    */
    Pfloat   radius;       /* radius    */
    Pfloat   start;        /* start angle    */
    Pfloat   end;          /* end angle    */
} circular_arc;
struct Pellipse3 {
    Ppoint3  center_point; /* center point    */
    Pvec3    major_ref_vec; /* major axis reference vector    */
    Pvec3    minor_ref_vec; /* minor axis reference vector    */
} ellipse3;
struct Pellipse {
    Ppoint   center_point; /* center point    */
    Pvec     major_ref_vec; /* major axis reference vector    */
    Pvec     minor_ref_vec; /* minor axis reference vector    */
} ellipse;

```

```

struct Pelliptical_arc3 {
    Ppoint3      center_point;      /* center point          */
    Pvec3        major_ref_vec;      /* major axis reference vector */
    Pvec3        minor_ref_vec;      /* minor axis reference vector */
    Pfloat       start;              /* start angle            */
    Pfloat       end;                /* end angle              */
} elliptical_arc3;

struct Pelliptical_arc {
    Ppoint      center_point;      /* center point          */
    Pvec        major_ref_vec;      /* major axis reference vector */
    Pvec        minor_ref_vec;      /* minor axis reference vector */
    Pfloat      start;              /* start angle            */
    Pfloat      end;                /* end angle              */
} elliptical_arc;

struct Pfill_circle3 {
    Ppoint3      center_point;      /* center point          */
    Pfloat       radius;             /* radius                */
    Pvec3        ref_vecs[2];        /* reference vectors      */
} fill_circle3;

struct Pfill_circle {
    Ppoint      center_point;      /* center point          */
    Pfloat      radius;            /* radius                */
} fill_circle;

struct Pcircular_arc_close3 {
    Ppoint3      center_point;      /* center point          */
    Pfloat       radius;            /* radius                */
    Pvec3        ref_vecs[2];        /* reference vectors      */
    Pfloat       start;              /* start angle            */
    Pfloat       end;                /* end angle              */
    Pclosure     type;              /* closure type          */
} circular_arc_close3;

struct Pcircular_arc_close {
    Ppoint      center_point;      /* center point          */
    Pfloat      radius;            /* radius                */
    Pfloat      start;              /* start angle            */
    Pfloat      end;                /* end angle              */
    Pclosure     type;              /* closure type          */
} circular_arc_close;

struct Pfill_ellipse3 {
    Ppoint3      center_point;      /* center point          */
    Pvec3        major_ref_vec;      /* major axis reference vector */
    Pvec3        minor_ref_vec;      /* minor axis reference vector */
} fill_ellipse3;

struct Pfill_ellipse {
    Ppoint      center_point;      /* center point          */
    Pvec        major_ref_vec;      /* major axis reference vector */
    Pvec        minor_ref_vec;      /* minor axis reference vector */
} fill_ellipse;

```

```

struct Pelliptical_arc_close3 {
    Ppoint3      center_point;      /* center point */
    Pvec3        major_ref_vec;     /* major axis reference vector */
    Pvec3        minor_ref_vec;     /* minor axis reference vector */
    Pfloat       start;             /* start angle */
    Pfloat       end;               /* end angle */
    Pclosure     type;              /* closure type */
} elliptical_arc_close3;

struct Pelliptical_arc_close {
    Ppoint      center_point;      /* center point */
    Pvec        major_ref_vec;     /* major axis reference vector */
    Pvec        minor_ref_vec;     /* minor axis reference vector */
    Pfloat      start;             /* start angle */
    Pfloat      end;               /* end angle */
    Pclosure    type;              /* closure type */
} elliptical_arc_close;

Plinetype_adapt  linetype_adapt;  /* linetype adaptability */
Plinetype_cont   linetype_cont;   /* linetype continuity */
Phighl_method    highl_method;    /* highlighting method */
Pint_list        active_textures; /* active textures */
Pint_list        back_active_textures; /* back active textures */
Pperspect_corr   perspect_corr;   /* textr perspective correction */

struct Ptexture_res_opt_heur {
    Pint      opt_hint;      /* optimization hint */
    Pint_list usage_priorities; /* texture usage priorities */
} texture_res_opt_heur;

Pint_list      alpha_src_sel; /* alpha source selector */

struct Pcond_exec_struct {
    Pint      struct_id;      /* structure identifier */
    Ptest     test;           /* condition test */
} cond_exec_struct;

struct Pcond_inst_struct {
    Pint      struct_id;      /* structure identifier */
    Ptest     test;           /* condition test */
} cond_inst_struct;

Ptest      cond_return; /* condition test */

struct Pcond_skip_elems {
    Pint      skip_count; /* number of elements to skip */
    Ptest     test;       /* condition test */
} cond_skip_elems;

```

```

struct Pcond_skip_to_label {
    Pint      label;          /* label to which to skip      */
    Ptest     test;          /* condition test              */
} cond_skip_to_label;
/* end of Full PHIGS element data */

} Pelem_data;

```

Pelem_type ELEMENT TYPE

```

typedef enum {
    /* start of PHIGS enumerations */
    ...,
    /* end of PHIGS enumerations */
    /* start of PHIGS PLUS enumerations */
    ...,
    /* end of PHIGS PLUS enumerations */
    /* start of Full PHIGS enumerations */
    PELEM_APPL_INT,
    PELEM_APPL_REAL,
    PELEM_CIRCLE3,
    PELEM_CIRCLE,
    PELEM_CIRCULAR_ARC3,
    PELEM_CIRCULAR_ARC,
    PELEM_ELLIPSE3,
    PELEM_ELLIPSE,
    PELEM_ELLIPTICAL_ARC3,
    PELEM_ELLIPTICAL_ARC,
    PELEM_FILL_CIRCLE3,
    PELEM_FILL_CIRCLE,
    PELEM_CIRCULAR_ARC_CLOSE3,
    PELEM_CIRCULAR_ARC_CLOSE,
    PELEM_FILL_ELLIPSE3,
    PELEM_FILL_ELLIPSE,
    PELEM_ELLIPTICAL_ARC_CLOSE3,
    PELEM_ELLIPTICAL_ARC_CLOSE,
    PELEM_HIGHL_IND,
    PELEM_LINETYPE_ADAPT,
    PELEM_LINETYPE_CONT,
    PELEM_LINETYPE_OFFSET,

```

```

PELEM_HIGHL_METHOD,
PELEM_ACTIVE_TEXTURES,
PELEM_BACK_ACTIVE_TEXTURES,
PELEM_TEXTURE_PERSPECT_CORR,
PELEM_TEXTURE_SAMPLING_FREQ,
PELEM_TEXTURE_RES_OPT_HEUR,
PELEM_TRANSPARENCY,
PELEM_BACK_TRANSPARENCY,
PELEM_ALPHA_SRC_SEL,
PELEM_ALPHA_DATA_SEL_IND,
PELEM_INST_STRUCT,
PELEM_COND_EXEC_STRUCT,
PELEM_COND_INST_STRUCT,
PELEM_COND_RETURN,
PELEM_COND_SKIP_ELEMS,
PELEM_COND_SKIP_TO_LABEL,
PELEM_PUSH_ST,
PELEM_POP_ST
/* end of Full PHIGS enumerations */

} Pelem_type;

```

Pin_class **INPUT CLASS**

```

typedef enum {
    /* start of Basic PHIGS enumerations */
    PIN_NONE,
    PIN_LOC,
    PIN_STROKE,
    PIN_VAL,
    PIN_CHOICE,
    PIN_PICK,
    PIN_STRING,
    /* end of Basic PHIGS enumerations */
    /* start of Full PHIGS enumerations */
    PIN_SET,
    PIN_COMPOSITE,
    /* end of Full PHIGS enumerations */
} Pin_class;

```

Pint_style INTERIOR STYLE

```
typedef enum {  
    /* start of Basic PHIGS enumerations */  
    ...  
    /* end of Basic PHIGS enumerations */  
    /* start of Full PHIGS enumerations */  
    PSTYLE_TEXTURE  
    /* end of Full PHIGS PLUS enumerations */  
}  
Pint_style;
```

Popen_struct_status OPEN STRUCTURE STATUS

```
typedef enum {  
    /* start of Basic PHIGS enumerations */  
    PSTRUCT_NONE,  
    PSTRUCT_OPEN,  
    /* end of Basic PHIGS enumerations */  
    /* start of Full PHIGS enumerations */  
    PSTRUCT_DI_OPEN  
    /* end of Full PHIGS enumerations */  
}  
Popen_struct_status;
```

11.3 Modifications to *PHIGS PLUS* profile type definitions

Pcolr_rep_ptr COLOUR REPRESENTATION POINTER

```
typedef union {
    /* start of PHIGS PLUS union members */
    Prgb      *rgb;          /* pointer to RGB colour values */
    Pcieluv   *cieluv;       /* pointer to CIELUV pointer values */
    Phls      *hls;          /* pointer to HLS pointer values */
    Phsv      *hsv;          /* pointer to HSV pointer values */
    /* end of PHIGS PLUS union members */
    /* start of Full PHIGS union members */
    Prgba     *rgba;         /* pointer to RGBA colour values */
    Pcieluva  *cieluva;      /* pointer to CIELUVA pointer values */
    Phlsa     *hlsa;         /* pointer to HLSA pointer values */
    Phsva     *hsva;         /* pointer to HSVa pointer values */
    /* end of Full PHIGS union members */
    ...           /* implementation defined */
} Pcolr_rep_ptr;
```

Ppat_rep_plus PATTERN REPRESENTATION PLUS

```
typedef Pgcolr_array Ppat_rep_plus;
```

11.4 Implementation dependent Full *PHIGS* profile type definitions

Pbackg_method POSTING GROUP BACKGROUND METHOD

```
typedef struct {
    Pint      method;        /* background method */
    union Pbackg_method_data {
        struct Pcolr_table_0 {
            Pint      unused; /* unused */
        } colr_table_0;
        struct Pcolr_ind {
            Pint      colr_ind; /* colour index */
        } colr_ind;
        struct Pcolr {
            Pcolr_rep colr_rep; /* target address */
        } colr;
    };
};
```

```

    struct Pimage_resource {
        Pint      image_resource_id; /* image resource identifier */
    } image_resource;
    ...                               /* implementation defined */
} data;
} Pbackg_method;

```

Pclamp_method **BOUNDARY CLAMP METHOD DATA RECORD**

```

typedef struct {
    Pint      method;           /* clamp method */
    union Pclamp_method_data {
        Pint      unused;       /* used by method 1 */
        Pcolour   clamp_colour; /* used by method 2 */
        ...       /* implementation defined */
    } data;
} Pclamp_method;

```

Pcoord_src **COORDINATE SOURCE DATA RECORD**

```

typedef struct {
    Pint      coord_src;       /* coordinate source */
    union Pcoord_src_data {
        Pint      unused;       /* used by coord sources 1 - 5 */
        Pint      coord_idx;    /* used by coord source 6 */
        Pmatrix3  refl_matrix;  /* used by coord sources 7 and 8 */
        ...       /* implementation defined */
    } data;
} Pcoord_src;

```

Pdi_pick_data **DIRECT INTERPRETATION PICK DATA RECORD**

```

typedef struct {
    union Pdi_pick_pets {
        struct Pdi_pick_pet_other {
            Pint      unused;
        } pet_other; /* When no echo-specific data is required */
    }
}

```

```

    struct Pdi_pick_pet_r1 {
        . . . /* impl. dependent */
    } pet_r1; /* For PET 1 */
    . . . /* implementation defined PET's */
} pets;

union Pdi_pick_measure_data {
    struct Pdi_pick_meas_other {
        Pint unused;
    } meas_other; /* When no measure-specific data is required */
    . . . /* data for impl. defined measure processes */
} measure_data;

union Pdi_pick_trigger_data {
    struct Pdi_pick_trig_other {
        Pint unused;
    } trig_other; /* When no trigger-specific data is required */
    . . . /* data for impl. defined di_pick processes */
} trigger_data;

union Pdi_pick_ack_data {
    struct Pdi_pick_ack_other {
        Pint unused;
    } ack_other; /* When no ack.-specific data is required */
    . . . /* data for impl. defined ack. processes */
} acknowledgement_data;
} Pdi_pick_data;

```

Pdi_pick_data3 DIRECT INTERPRETATION PICK DATA RECORD 3

```

typedef struct {
    union Pdi_pick3_pets {
        struct Pdi_pick3_pet_other {
            Pint unused;
        } pet_other; /* When no echo-specific data is required */
        struct Pdi_pick3_pet_r1 {
            . . . /* impl. dependent */
        } pet_r1; /* For PET 1 */
        . . . /* data for impl. defined pets */
    } pets;

    union Pdi_pick3_measure_data {
        struct Pdi_pick3_meas_other {
            Pint unused;
        } meas_other; /* When no measure-specific data is required */
    }

```

```

    . . .      /* data for impl. defined measure processes */
} measure_data;
union Pdi_pick3_trigger_data {
    struct Pdi_pick3_trig_other {
        Pint      unused;
    } trig_other; /* When no trigger-specific data is required */
    . . .      /* data for impl. defined di_pick processes */
} trigger_data;
union Pdi_pick3_ack_data {
    struct Pdi_pick3_ack_other {
        Pint      unused;
    } ack_other; /* When no ack.-specific data is required */
    . . .      /* data for impl. defined ack. processes */
} acknowledgement_data;
} Pdi_pick_data3;

```

Phigh1_method **HIGHLIGHTING METHOD**

```

typedef struct {
    Pint      method;
    union _Phigh1_data {
        Pint      unused;
        Pfloat    blink_rate;
        Pint      colr_ind;
        Pgcolr    colr;
        struct _Phigh1_blink_colr {
            Pfloat    blink_rate;
            Pgcolr    blink_colr;
        } high1_blink_colr;
        ...      /* implementation defined methods */
    } high1_data;
} Phigh1_method;

```

Pimage_res IMAGE RESOURCE

```

typedef struct {
    Pint image_spec_method;
    union _Pimage_data {
        struct Puncomp_colr_ind_array {
            Pint *colr_ind_array; /* uncompressed array of colour indices */
        } uncomp_colr_ind_array;
        struct Puncomp_colr_array {
            Pgcolr_array *colr_array; /* uncompressed array of colours */
        } uncomp_colr_array;
        struct Pwindow_sys_bitmap {
            Pint handle; /* bitmap handle */
        } window_sys_bitmap;
        struct Pvideo_sig_chan_id {
            Pint chan_id; /* video signal channel id */
        } video_sig_chan_id;
        struct Pluminance {
            Pfloat_array *lum_values; /* uncompressed array of luminance values */
        } luminance;
        struct Pluminance_alpha {
            Plum_alpha_array *lum_values; /* uncompressed array of luminance values */
        } luminance_alpha;
        struct Pmipmap_colrs {
            Pgcolr_array_set colr_arrays; /* set of uncompressed colour arrays */
        } mipmap_colrs;
        struct Pmipmap_luminance {
            Pfloat_array_set lum_values; /* set of uncompressed luminance arrays */
        } mipmap_luminance;
        struct Pmipmap_luminance_alpha {
            Plum_alpha_array_set lum_values; /* set of uncompressed luminance/alpha arrays */
        } mipmap_luminance_alpha;
        ... /* implementation defined methods */
    } image_data;
} Pimage_res;

```

Pin_class_data INPUT CLASS DATA RECORD

```

typedef union _Pin_class_data {
    Pint          unused;
    Ploc_data     loc;
    Ploc_data3    loc3;
    Pstroke_data  stroke;
    Pstroke_data3 stroke3;
    Pval_data     val;
    Pval_data3    val3;
    Pchoice_data  choice;
    Pchoice_data3 choice3;
    Ppick_data    pick;
    Ppick_data3   pick3;
    Pstring_data  string;
    Pstring_data3 string3;
    Pset_data     set;
    Pcomposite_data composite;
    ...           /* other classes of input data */
} Pin_class_data;

```

Pin_class_measure INPUT CLASS MEASURE

```

typedef union _Pin_class_measure {
    struct {
        Pint      view_ind;
        Ppoint     loc_pos;
    } loc;
    struct {
        Pint      view_ind;
        Ppoint3    loc_pos;
    } loc3;
    struct {
        Pint      view_ind;
        Ppointlist points;
    } stroke;
}

```

```

    struct {
        Pint          view_ind;
        Ppoint_list3 points;
    } stroke3;
    Pfloat            val;
    struct {
        Pin_status    istat;
        Pint          selection;
    } choice;
    struct {
        Pin_status    istat;
        Ppick_path    *path;
    } pick;
    char              *string;
    Pset_measure      *set;
    Pcomposite_measure *composite;
    ...               /* other classes which may be added */
} Pin_class_measure;

```

Pmarker_data **MARKER DATA**

```

typedef struct {
    Pint          shape_type;    /* shape type */
    union _Pshape_data {
        Ppoint_list polyline;    /* for PSHAPE_POLYLINE */
        Ppoint_list fill_area;    /* for PSHAPE_FILL_AREA */
        Ppoint_list convex_fill_area; /* for PSHAPE_CONVEX_FILL_AREA */
        ...                /* implementation defined */
    } shape_data;    /* marker shape data */
} Pmarker_data;

```

Ppattern PATTERN

```

typedef struct {
    Pint          type;          /* pattern type */
    union _Ppattern_data {
        struct Ppat_colr_ind_array {
            Ppat_rep pat_rep;    /* pattern representation */
        } pat_colr_ind_array;
        struct Ppat_colr_array {
            Ppat_rep_plus pat_rep_plus; /* pattern representation plus */
        } pat_colr_array;
        struct Ppat_image_res {
            Pint image_res_id;    /* pattern image resource */
        } pat_image_res;
        ... /* implementation defined */
    } data; /* pattern data */
} Ppattern;

```

Ptarg_op TARGET OPERATION

```

typedef struct {
    Pint          type;          /* target operation type */
    union _Ptarget_op_data {
        struct Prend_targ {
            Ptarg_addr targ_addr; /* target address */
        } rend_targ;
        struct Pdisp_targ {
            Ptarg_addr targ_addr; /* target address */
        } disp_targ;
        struct Pclear_targ {
            Ptarg_addr targ_addr; /* target address */
        } clear_targ;
        struct Pcopy_targ {
            Ptarg_addr src_targ_addr; /* source target address */
            Ptarg_addr dest_targ_addr; /* destination target address */
        } copy_targ;
        ... /* implementation defined */
    } data; /* target operation data */
} Ptarg_op;

```

Ptest TEST

```

typedef struct {
    Pint          method;          /* test method          */
    union _Ptest_data {
        struct Ptest_always_fail {
            Pint          unused;
        } test_always_fail;
        struct Ptest_always_succeed {
            Pint          unused;
        } test_always_succeed;
        struct Ptest_extent_3 {
            Plimit3       rect;      /* extent rectangle    */
            Ptest_comp     relation; /* test relation       */
            Pfloat         threshold; /* threshold value     */
        } test_extent_3;
        struct Ptest_extent {
            Plimit         rect;      /* extent rectangle    */
            Ptest_comp     relation; /* test relation       */
            Pfloat         threshold; /* threshold value     */
        } test_extent;
        struct Ptest_bounds_3 {
            Ppoint_list_list3 point_lists; /* test object        */
            Pclip_cond       cond;      /* test condition      */
        } test_bounds_3;
        struct Ptest_bounds {
            Ppoint_list_list point_lists; /* test object        */
            Pclip_cond       cond;      /* test condition      */
        } test_bounds;
        struct Ptest_nameset {
            Pint          filter_type; /* type of filter      */
            Pint          filter_id;  /* filter identifier    */
            Pfilter_op     cond;      /* test condition      */
        } test_nameset;
        struct Ptest_appl_int {
            Pint          appl_id;    /* appl. integer selector */
            Ptest_comp_rel comparison; /* test comparison      */
            Pint          data;       /* appl integer data value */
        } test_appl_int;
        struct Ptest_appl_real {
            Pint          appl_id;    /* appl. real selector  */
            Ptest_comp_rel comparison; /* test comparison      */
            Pfloat         data;      /* appl real data value  */
        } test_appl_real;
    };
};

```

```

    struct Ptest_cond_flags {
        Pcond_flags_eval_op op;      /* condition flags eval. op.  */
    } test_cond_flags;
    struct Ptest_appl_int_as_logical {
        Pint          appl_id;      /* appl. integer selector  */
        Ptest_comp_logical comparison; /* test comparison          */
        Pint          data;         /* appl integer data value  */
    } test_appl_int;
    ...                             /* implementation defined  */
} test_data;                      /* test data record*/

} Ptest;

```

Ptexture_compos TEXTURE COMPOSITION DATA RECORD

```

typedef struct {
    Pint          method;          /* composition method      */
    union {
        Pint          unused;      /* used by methods 1, 2, and 4 */
        struct {
            Pgcolr     environ;     /* environment colour      */
            Pint        gamma_chan_sel; /* gamma channel selector  */
        } blend_env;
        Pgcolr        background_colr; /* used by method 5        */
        ...           /* implementation defined   */
    } data;
} Ptexture_compos;

```

Ptrav_res_op TRAVERSAL RESOURCE OPERATION

```

typedef struct {
    Pint          type;            /* trav. res. operation type */
    union Ptrav_res_op_data {
        struct Ptrav_res_clear {
            Pint          res_id;    /* traversal resource id.    */
        } trav_res_clear;
        struct Ptrav_res_copy {
            Pint          src_res_id; /* source traversal res. id.  */
            Pint          dest_res_id; /* destination trav. res. id. */
        } trav_res_copy;
    };
}

```

```

        ...                               /* implementation defined      */
    } data;                               /* trav. res. operation data    */
} Ptrav_res_op;

```

11.5 Implementation independent type definitions

Paccess_flag ACCESS FLAG

```

typedef enum {
    PACCESS_REFERENCED = 0,
    PACCESS_COPIED = 1
} Paccess_flag;

```

Pack_process ACKNOWLEDGEMENT PROCESS

```

typedef struct {
    Pack_type      type;
    Pint           process_id;
} Pack_process;

```

Pack_process_list ACKNOWLEDGEMENT PROCESS LIST

```

typedef struct {
    Pint           count;
    Pack_process   *procs;
} Pack_process_list;

```

Pack_type ACKNOWLEDGEMENT TYPE

```

typedef enum {
    P_ACK_ACCEPTANCE = 0,
    P_ACK_NONACCEPTANCE = 1
} Packnowledgement_type;

```

Palpha_facs ALPHA FACILITIES

```
typedef struct {
    Pint_list  alpha_srcs;      /* list available alpha sources      */
    Pint_list  transp_modes;    /* list transparency modes supported */
} Palpha_facs;
```

Passoc_flag ASSOCIATION FLAG

```
typedef enum {
    PNOTASSOCIATED = 0,
    PASSOCIATED = 1
} Passoc_flag;
```

Patomic_lid_facs ATOMIC LOGICAL INPUT DEVICE FACILITIES

```
typedef struct {
    Pint      max_simul_trig,    /* max simul. trigger procs          */
    Pint      max_simul_echo,    /* max simul. echo procs              */
    Pint      max_simul_ack,     /* max simul. acknowledgement procs   */
    Pint_list meas_proc_ids,     /* available measure process ids      */
    Pint_list trig_proc_ids,     /* available trigger process ids       */
    Pint_list echo_proc_ids,     /* available echo process ids          */
    Pint_list ack_proc_ids      /* available acknowledgement process ids */
} Patomic_lid_facs;
```

Pbackg_redisplay BACKGROUND REDISPLAY FLAG

```
typedef enum {
    PBACKG_REDISPLAY_OFF = 0,
    PBACKG_REDISPLAY_ON = 1
} Pbackg_redisplay;
```

Pbackg_style BACKGROUND STYLE

```
typedef enum {  
    PBACKG_STYLE_TRANSPARENT = 0,  
    PBACKG_STYLE_OPAQUE = 1  
} Pbackg_style;
```

Pboolean BOOLEAN

```
typedef enum {  
    PFALSE = 0,  
    PTRUE = 1  
} Pboolean;
```

Pborder_indic BORDER INDICATOR

```
typedef enum {  
    PBORDER_OFF = 0,  
    PBORDER_ON = 1  
} Pborder_indic;
```

Pcieluva CIE L*U*V* WITH ALPHA

```
typedef struct {  
    Pfloat    cieluv_x;        /* x coefficient */  
    Pfloat    cieluv_y;        /* y coefficient */  
    Pfloat    cieluv_y_lum;    /* y luminance */  
    Pfloat    alpha;          /* alpha */  
} Pcieluva;
```

Pclip_cond CLIP CONDITION

```
typedef enum {  
    PCLIPCOND_IS_NOT_CLIPPED = 0,  
    PCLIPCOND_IS_PARTIALLY_CLIPPED = 1,  
    PCLIPCOND_IS_FULLY_CLIPPED = 2  
} Pclip_cond;
```

Pclosure CLOSURE TYPE

```
typedef enum {  
    PCLOSURE_PIE = 0,  
    PCLOSURE_SEGMENT = 1  
} Pclosure;
```

Pcomposite_data COMPOSITE DATA

```
typedef struct {  
    Pint count;  
    Pcomposite_individual *individual;  
} Pcomposite_data;
```

Pcomposite_facs **COMPOSITE FACILITIES**

```

typedef struct {
    Pint      max_simul_meas,          /* max simul. measure procs      */
    Pint      max_simul_trig,          /* max simul. trigger procs      */
    Pint      max_simul_echo,          /* max simul. echo procs         */
    Pint      max_simul_ack,           /* max simul. acknowledgement procs */
                                          */
    Pint_list loc_meas_proc_ids,        /* avail. locator measure proc. ids */
                                          */
    Pint_list stroke_meas_proc_ids,     /* avail. stroke measure proc. ids  */
                                          */
    Pint_list val_meas_proc_ids,        /* avail. valuator measure proc. ids */
                                          */
    Pint_list choice_meas_proc_ids,     /* avail. choice measure proc. ids  */
                                          */
    Pint_list pick_meas_proc_ids,       /* avail. pick measure proc. ids    */
    Pint_list string_meas_proc_ids,     /* avail. string measure proc. ids  */
                                          */
    Pint_list set_meas_proc_ids,        /* avail. set measure proc. ids     */
    Pint_list composite_meas_proc_ids,  /* avail. composite meas. proc. ids */
                                          */
    Pint_list trig_proc_ids,            /* available trigger process ids    */
    Pint_list loc_echo_proc_ids,        /* available locator echo proc. ids */
                                          */
    Pint_list stroke_echo_proc_ids,     /* available stroke echo proc. ids  */
                                          */
    Pint_list val_echo_proc_ids,        /* available valuator echo proc. ids */
                                          */
    Pint_list choice_echo_proc_ids,     /* available choice echo proc. ids  */
                                          */
    Pint_list pick_echo_proc_ids,       /* available pick echo proc. ids    */
    Pint_list string_echo_proc_ids,     /* available string echo proc. ids  */
                                          */
    Pint_list set_echo_proc_ids,        /* available set echo proc. ids     */
    Pint_list comp_echo_proc_ids,       /* available composite echo proc. ids */
                                          */
    Pint_list ack_proc_ids              /* available ack. proc. ids         */
} Pcomposite_facs;

```

Pcomposite_individual COMPOSITE INDIVIDUAL

```
typedef struct _Pcomposite_individual {
    Pin_class      class;
    _Pin_class_data *data;
} Pcomposite_individual;
```

Pcomposite_measure COMPOSITE MEASURE

```
typedef struct _Pcomposite_measure {
    Pint          count;                /* number of measure components*/
    _Pmeasure      *measures;           /* list of measure components */
} Pcomposite_measure;
```

Pcond_trav_facs CONDITIONAL TRAVERSAL FACILITIES

```
typedef struct {
    Pint          num_invis_filters; /*number of avail. invisibility filters
                                     */
    Pint          num_highl_filters; /*number of avail. highlighting filters
                                     */
    Pint          num_pick_filters; /*number of avail. pick filters      */
    Pint          num_appl_filters; /*number of avail. application filters
                                     */
    Pint          num_appl_integers; /*number of application integer
                                     */
    Pint          num_appl_reals; /* values supported
                                     */
    Pint          num_appl_reals; /* number of application real values
                                     */
    Pint          num_appl_reals; /* supported
                                     */
    Pint_list test_methods; /* list of test methods available */
} Pcond_trav_fac;
```

Pcond_flags_eval_op CONDITION FLAGS EVALUATION OPERATOR

```
typedef enum {  
    PCOND_ALL_ENABLED,  
    PCOND_ALL_DISABLED,  
    PCOND_NOT_ALL_DISABLED,  
    PCOND_NOT_ALL_ENABLED,  
    PCOND_ALWAYS_PASS,  
    PCOND_NEVER_PASS  
} Pcond_flags_eval_op;
```

IECNORM.COM : Click to view the full PDF of ISO/IEC 9593-4:1991/Amd 2:1998

Pcond_flag_mask CONDITION FLAG MASK

```
typedef union {  
    unsigned int mask;  
    struct _Pcond_flag_set {  
        unsigned int flag0:1;  
        unsigned int flag1:1;  
        unsigned int flag2:1;  
        unsigned int flag3:1;  
        unsigned int flag4:1;  
        unsigned int flag5:1;  
        unsigned int flag6:1;  
        unsigned int flag7:1;  
        unsigned int flag8:1;  
        unsigned int flag9:1;  
        unsigned int flag10:1;  
        unsigned int flag11:1;  
        unsigned int flag12:1;  
        unsigned int flag13:1;  
        unsigned int flag14:1;  
        unsigned int flag15:1;  
        unsigned int flag16:1;  
        unsigned int flag17:1;  
        unsigned int flag18:1;  
        unsigned int flag19:1;  
        unsigned int flag20:1;  
        unsigned int flag21:1;  
        unsigned int flag22:1;  
        unsigned int flag23:1;  
        unsigned int flag24:1;  
        unsigned int flag25:1;  
        unsigned int flag26:1;  
        unsigned int flag27:1;  
        unsigned int flag28:1;  
        unsigned int flag29:1;  
        unsigned int flag30:1;  
        unsigned int flag31:1;  
    } flags;  
} Pcond_flag_mask;
```

Pcond_flags CONDITION FLAGS

```
typedef struct {
    Pcond_flag_mask    enable_mask;    /* condition flag enable mask */
    Pcond_flag_mask    disable_mask;   /* condition flag disable mask */
} Pcond_flags;
```

Pcond_flag_test CONDITION FLAG TEST

```
typedef struct {
    Ptest              test;            /* test operation */
    Pcond_flags        mask;            /* condition test mask */
} Pcond_flag_test;
```

Pcond_test_list CONDITION TEST LIST

```
typedef struct {
    Pint              num_tests;        /* number of condition test */
    Pcond_flag_test   *tests;          /* list of condition flag tests */
} Pcond_test_list;
```

Pconfig_name CONFIGURATION NAME

```
typedef struct {
    Pint              name_size;        /* size of name */
    char              *name;            /* configuration setting name */
} Pconfig_name;
```

Pconfig_name_list CONFIGURATION NAME LIST

```
typedef struct {
    Pint              list_size;        /* number of names */
    Pconfig_name      *name;            /* configuration name list */
} Pconfig_name_list;
```

Pconfig_setting_fac CONFIGURATION SETTING FACILITIES

```
typedef struct {
    Pint          num_supported; /* number of simultaneously supported
                                */
                                /* device coordinate clip regions */
} Pconfig_setting_fac;
```

Pconfig_settings CONFIGURATION SETTINGS

```
typedef struct {
    char          *name;          /* configuration setting name */
    Pconfig_value *value;         /* configuration setting value */
} Pconfig_settings;
```

Pconfig_value CONFIGURATION VALUE

```
typedef union {
    Pint          int_value;       /* integer configuration value */
    Pfloat        real_value;      /* real configuration value */
    char          *string_value;   /* string configuration value */
} Pconfig_value;
```

Pdc_clip_fac DEVICE COORDINATE CLIP REGION FACILITIES

```
typedef struct {
    Pint          num_supported; /* number of simultaneously sup-
                                ported*/
                                /* device coordinate clip regions */
} Pdc_clip_fac;
```

Pdepth_cue_mask DEPTH CUE MASK

```
typedef struct {
    unsigned int mode:1;
    unsigned int ref_planes:1;
    unsigned int scale:1;
    unsigned int gcolr:1;
    unsigned int :28;
} Pdepth_cue_mask;
```

Pdi_mode DIRECT INTERPRETATION MODE

```
typedef enum {
    PDIM_INTERPRET_NONE = 0,
    PDIM_INTERPRET_STATE = 1,
    PDIM_INTERPRET_ALL = 2
} Pdi_mode;
```

Pdi_trav_fac DIRECT INTERPRETATION TRAVERSAL FACILITIES

```
typedef struct {
    Pint    num_trav_procs;        /* number of simultaneously posted
                                   */
                                   /* traversal processes */
    Pint    num_rend_algorithms;   /* number of multi-pass algorithms
                                   */
                                   /* supported for rendering */
    Pint    num_pick_algorithms;   /* number of multi-pass algortihms
                                   */
                                   /* supported for picking */
} Pdi_trav_fac;
```

Pdyns_post_grps DYNAMICS OF POSTING GROUPS

```
typedef struct {
    Pdyn_mod    posting_status; /* posting status modification */
} Pdyns_post_grps;
```

Pdyns_ws_attrs_texture DYNAMICS OF WORKSTATION ATTRIBUTES TEXTURE

```
typedef struct {
    Pdyn_mod    texture_rep;          /* texture representation      */
} Pdyns_ws_attrs_texture;
```

Pecho_measure_proc ECHO MEASURE PROCESS

```
typedef struct {
    Pin_class    dev_class; /* input class */
    Pint         instance; /* i = ith of class in LID def. */
} Pecho_measure_proc;
```

Pecho_process ECHO PROCESS

```
typedef struct {
    Pint         pet;
    Pecho_measure_proc *measures_echoed;
    Pint         process_id;
} Pecho_process;
```

Pecho_process_list ECHO PROCESS LIST

```
typedef struct {
    Pint         count;
    Pecho_process *procs;
} Pecho_process_list;
```

Pedge_bundle_full EDGE BUNDLE FULL

```

typedef struct {
    Pedge_flag      flag;           /* edge flag                */
    Pint            type;           /* edgetype                 */
    Pfloat          width;         /* edgewidth scale factor   */
    Pcolr           colr;          /* edge colour              */
    Plinetype_adapt adapt;         /* edgetype adaptability    */
    Plinetype_cont  cont;         /* edgetype continuity      */
    Pfloat          offset;        /* edgetype offset          */
    Plinecap        cap;           /* edgecap                  */
    Plinejoin       join;          /* edgejoin                 */
    Pfloat          limit;         /* edgemitre limit         */
} Pedge_bundle_full;

```

Pedge_mask EDGE MASK

```

typedef struct {
    unsigned int flag:1;
    unsigned int type:1;
    unsigned int width:1;
    unsigned int colr:1;
    unsigned int adapt:1;
    unsigned int cont:1;
    unsigned int offset:1;
    unsigned int cap:1;
    unsigned int join:1;
    unsigned int limit:1;
    unsigned int :22;
} Pedge_mask;

```

Pedgetype_adapt EDGETYPE ADAPTABILITY

```

typedef enum {
    PEDTA_EXACT = 0,
    PEDTA_ADAPT = 1
} Pedgetype_adapt;

```

Pedgecap EDGECAP

```
typedef enum {  
    PEDC_BUTT = 0,  
    PEDC_ROUND = 1,  
    PEDC_SQUARE = 2  
} Pedgecap;
```

Pedgetype_cont EDGETYPE CONTINUITY

```
typedef enum {  
    PEDTC_CONTINUOUS = 0,  
    PEDTC_RESTART = 1  
} Pedgetype_cont;
```

Pedgejoin EDGEJOIN

```
typedef enum {  
    PEDJ_FLAT = 0,  
    PEDJ_MITRE = 1,  
    PEDJ_ROUND = 2,  
    PEDJ_BEVEL = 3  
} Pedgejoin;
```

Pext_pat_fac EXTENDED PATTERN FACILITIES

```
typedef struct {  
    Pint_list pattern_types; /* list of supported pattern types */  
    Pint_list image_spec_methods; /* list of supported image specification  
                                */  
                                /* methods */  
} Pext_pat_fac;
```

Pfilter_op FILTER RELATIONS

```
typedef enum {
    PFILTER_FAILS = 0,
    PFILTER_PASSES = 1
} Pfilter_op;
```

Pfloat_array FLOAT ARRAY

```
typedef struct {
    Pint_size      dims;           /* float array dimensions */
    Pfloat         *floats;       /* float array */
} Pfloat_array;
```

Pfloat_array_set FLOAT ARRAY SET

```
typedef struct {
    Pint          num_arrays;      /* number of float arrays in set */
    Pfloat_array  *floats;       /* float arrays */
} Pfloat_array_set;
```

Pgcolr_array GENERAL COLOUR ARRAY

```
typedef struct {
    Pint          colr_type;       /* colour type */
    Pcolrv_array  colrs;          /* colour array */
} Pgcolr_array;
```

Pgcolr_array_set GENERAL COLOUR ARRAY SET

```
typedef struct {
    Pint          colr_type;       /* colour type */
    Pint          num_arrays;      /* number of arrays in set */
    Pcolrv_array  *colrs;         /* set of colour arrays */
} Pgcolr_array_set;
```

Phighl_facs HIGHLIGHTING FACILITIES

```

typedef struct {
    Pint        num_pred;        /* number of predefined methods */
    Pint_list    methods;         /* number of highl. methods supp. */
    Pint        max_highl_ind;    /* max highl. table indices */
} Phighl_facs;

```

Phlsa HUE LIGHTNESS SATURATION WITH ALPHA

```

typedef struct {
    Pfloat      hue;              /* hue */
    Pfloat      lightness;        /* lightness */
    Pfloat      saturation;       /* saturation */
    Pfloat      alpha;            /* alpha */
} Phlsa;

```

Phsva HUE SATURATION VALUE WITH ALPHA

```

typedef struct {
    Pfloat      hue;              /* hue */
    Pfloat      saturation;       /* saturation */
    Pfloat      value;            /* value */
    Pfloat      alpha;            /* alpha */
} Phsva;

```

Pimage_res_facs IMAGE RESOURCE FACILITIES

```

typedef struct {
    Pint_list    image_spec_methods; /* list of supported image */
                                      /* specification methods */
    Pint        num_def_ids;         /* number of definable image resource */
                                      /* */
                                      /* identifiers */
    Pint        num_predef_ids;      /* number of predefined image resources */
                                      /* */
} Pimage_res_facs;

```

_Pin_class_data INPUT CLASS DATA RECORD

```
union _Pin_class_data; /* used for defining Pset_data and
                        Pcomposite_data; */
```

Pin_class_measure INPUT CLASS MEASURE

```
union _Pin_class_measure; /* used for defining Pmeasure and
                           Pset_measure */
```

Pinterior_mask INTERIOR MASK

```
typedef struct {
    unsigned int style:1;
    unsigned int style_ind:1;
    unsigned int colr:1;
    unsigned int shad_method:1;
    unsigned int :28;
} Pinterior_mask;
```

Plight_attach LIGHT SOURCE ATTACHMENT

```
typedef struct {
    Pint    light_ws_id;          /* workstation id for view */
    Pint    light_src_ind;       /* view index */
    Pint    light_action_type;   /* view action type */
    Pint    transfer_type;       /* measure transfer type */
} Plight_attach;
```

Plimit_list LIMIT LIST

```
typedef struct {
    Pint    num_limits;          /* number of limits */
    Plimit  *limits;            /* list of limits */
} Plimit_list;
```

Plimit3_list LIMIT 3 LIST

```

typedef struct {
    Pint          num_limits;    /* number of limits          */
    Plimit3       *limits;      /* list of limits            */
} Plimit3_list;

```

Pline_bundle_full POLYLINE BUNDLE FULL

```

typedef struct {
    Pint          type;          /* linetype                  */
    Pfloat        width;        /* linewidth scale factor    */
    Pgolr         colr;         /* polyline colour           */
    Pint          shad_method;   /* polyline shading method   */
    Pcurve_approx_crit_data    curve_approx_crit_data;
                                /* curve approx. criteria    */
    Plinetype_adapt adapt;      /* linetype adaptability     */
    Plinetype_cont cont;       /* linetype continuity       */
    Pfloat        offset;       /* linetype offset           */
    Plinecap      cap;          /* linecap                   */
    Plinejoin     join;         /* linejoin                  */
    Pfloat        limit;        /* linemitre limit           */
} Pline_bundle_full;

```

Plinecap LINECAP

```

typedef enum {
    PLNC_BUTT = 0,
    PLNC_ROUND = 1,
    PLNC_SQUARE = 2
} Plinecap;

```

Plinejoin LINEJOIN

```
typedef enum {
    PLNJ_FLAT = 0,
    PLNJ_MITRE = 1,
    PLNJ_ROUND = 2,
    PLNJ_BEVEL = 3
} Plinejoin;
```

Plinetype_adapt LINETYPE ADAPTABILITY

```
typedef enum {
    PLNTA_EXACT = 0,
    PLNTA_ADAPT = 1
} Plinetype_adapt;
```

Plinetype_cont LINETYPE CONTINUITY

```
typedef enum {
    PLNTC_CONTINUOUS = 0,
    PLNTC_RESTART = 1
} Plinetype_cont;
```

Plinetype_def_facs LINETYPE DEFINITION FACILITIES

```
typedef struct {
    Pint    num_definable;      /* number definable linetypes */
    Pint    num_predefined;    /* number predefined linetypes */
    Pint    max_dash_segments; /* maximum dash segments supported */
    Pfloat   offset;           /* offset to definable linetypes */
    Pint_list predef_def_linetypes /* list of predef. definable linetypes */
    */
} Plinetype_def_fac;
```

Plum_alpha_array LUMINANCE ALPHA ARRAY

```
typedef struct {  
    Pint_size      dims;          /* array dimensions          */  
    Plum_alpha_pair *values;      /* 2D array of luminance/alpha pairs */  
} Plum_alpha_array;
```

Plum_alpha_array_set LUMINANCE ALPHA ARRAY SET

```
typedef struct {  
    Pint      num_arrays; /* number of arrays in set */  
    Plum_alpha_array *sets; /* set of 2D luminance/alpha arrays */  
} Plum_alpha_array_set;
```

Plum_alpha_pair LUMINANCE ALPHA PAIR

```
typedef struct {  
    Pfloat      lum_value; /* luminance_value */  
    Pfloat      alpha_value; /* alpha value */  
} Plum_alpha_pair;
```

Pmarker_desc MARKER DESCRIPTOR

```
typedef struct {  
    Pint      number_shapes; /* number of shapes */  
    Pmarker_data *marker; /* array of shape descriptors */  
} Pmarker_desc;
```

Pmarker_type_def_fac **MARKER TYPE DEFINITION FACILITIES**

```
typedef struct {
    Pint      num_definable;      /* number definable marker types */
    Pint      num_predefined;     /* number predefined marker types */
    Pfloat     offset;            /* offset to definable linetypes */
    Pint      max_allowable_pts;  /* maximum allowable points */
    Pint_list  shape_types;       /* list of available shape types */
    Pint_list  predef_marker_types /* list of predefined marker types */
                                   */
} Pmarker_type_def_fac;
```

Pmeasure **MEASURE**

```
typedef struct _Pmeasure {
    Pin_class      class;
    _Pin_class_measure *data;
} Pmeasure;
```

Pmeas_process **MEASURE PROCESS**

```
typedef struct {
    Pin_class      dev_class;
    Pint           process_id;
} Pmeas_process;
```

Pmeas_process_set **MEASURE PROCESS SET**

```
typedef struct {
    Pint      set_maxsize; /* maximum set size */
    Pmeas_process process_id; /* measure process identifier */
} Pmeas_process_set;
```

Pmeas_process_list MEASURE PROCESS LIST

```
typedef struct _Pmeas_process_list {
    Pint          count;          /* number of process in list */
    Pmeas_process *measure_procs; /* list of measure processes */
} Pmeas_process_list;
```

Pmipmap_facs MIPMAP FACILITIES

```
typedef struct {
    Pint      max_dims[3]; /* max dimensions mipmap base level */
    Pboolean  equal_dims_req; /* equal mipmap dimensions required */
    Pboolean  power_2_dims_req; /* power of 2 mipmap dimensions req. */
} Pmipmap_facs;
```

Pna_in_status NON-ATOMIC INPUT STATUS

```
typedef enum {
    PNA_IN_STATUS_NONE = 0,
    PNA_IN_STATUS_INCOMPLETE = 1,
    PNA_IN_STATUS_OK = 2
} Pna_in_status;
```

Pnum_na_in NUMBER NON-ATOMIC INPUT DEVICES

```
typedef struct {
    Pint      set; /* number available set LIDs */
    Pint      composite; /* number available composite LIDs */
} Pnum_na_in;
```

Ppattern_mask PATTERN MASK

```
typedef struct {
    unsigned int pat_bundle:1;
    unsigned int pat_rep_plus:1;
    unsigned int ext_pat_rep:1;
    unsigned int :29;
} Ppattern_mask;
```

Pperspect_corr PERSPECTIVE CORRECTION

```
typedef enum {
    PPERSP_CORR_NONE = 0,
    PPERSP_CORR_AT_VERTICES = 1,
    PPERSP_CORR_INTERIOR = 2
} Pperspect_corr;
```

Ppick_mapping_facfs PICK MAPPING FACILITIES

```
typedef struct {
    Pint_list avail_pick_types; /* list available pick types */
    Pint_list avail_echo_types; /* list of available echo types */
} Ppick_mapping_facfs;
```

Ppick_path_list PICK PATH LIST

```
typedef struct _Ppick_path_list {
    Pint num_paths; /* number paths in list */
    Ppick_path *paths; /* array of pick paths */
} Ppick_path_list;
```

Ppick_stat PICK STATUS

```
typedef enum {  
    PPICK_STAT_FALSE = 0,  
    PPICK_STAT_TRUE = 1  
} Ppick_stat;
```

Ppict_stat PICTURE STATUS

```
typedef enum {  
    PPICT_STAT_COMP = 0,  
    PPICT_STAT_INCOMP = 1  
} Ppict_stat;
```

Ppolyline_mask POLYLINE MASK

```
typedef struct {  
    unsigned int type:1;  
    unsigned int width:1;  
    unsigned int colr:1;  
    unsigned int shad_method:1;  
    unsigned int curve_approx_crit_data:1;  
    unsigned int adapt:1;  
    unsigned int cont:1;  
    unsigned int offset:1;  
    unsigned int cap:1;  
    unsigned int join:1;  
    unsigned int limit:1;  
    unsigned int :21;  
} Ppolyline_mask;
```

Ppolymarker_mask POLYMARKER MASK

```
typedef struct {  
    unsigned int type:1;  
    unsigned int size:1;  
    unsigned int colr:1;  
    unsigned int :29;  
} Ppolymarker_mask;
```

Pposted_ind POSTED INDICATOR

```
typedef enum {
    PPOSTED_FALSE = 0,
    PPOSTED_TRUE = 1
} Pposted_ind;
```

Ppost_grp_fac POSTING GROUP FACILITIES

```
typedef struct {
    Pint      num_def_grps;      /* number of definable posting groups */
    Pint      num_predef_grps;   /* number of predefined posting groups */
    Pint_list predef_grps;       /* list of predefined posting groups */
    Pint_list backg_methods;     /* list of supported posting group */
                                /* background methods */
} Ppost_grp_fac;
```

Ppost_grp_status POSTING GROUP STATUS

```
typedef enum {
    PPGSTAT_INACTIVE = 0,
    PPGSTAT_ACTIVE = 1
} Ppost_grp_status;
```

Pref_type REFERENCE TYPE

```
typedef enum {
    PREF_EXECUTE = 0,
    PREF_INSTANCE = 1
} Pref_type;
```

Prefl_mask REFLECTANCE MASK

```
typedef struct {  
    unsigned int refl_model:1;  
    unsigned int data:1;  
    unsigned int :30;  
} Prefl_mask;
```

Prgba RED GREEN BLUE WITH ALPHA

```
typedef struct {  
    Pfloat    red;           /* red intensity          */  
    Pfloat    green;        /* green intensity        */  
    Pfloat    blue;         /* blue intensity         */  
    Pfloat    alpha;        /* alpha                  */  
} Prgba;
```

Pset_data SET DATA RECORD

```
typedef struct _Pset_data {  
    Pin_class    dev_class;  
    Pint         num_in_set;  
    _Pin_class_data *data;  
} Pset_data;
```

Pset_fac SET FACILITIES

```

typedef struct {
    Pint      max_measures,           /* max instances */
    Pint      max_simul_trig,         /* max simul. trigger procs */
    Pint      max_simul_echo,         /* max simul. echo procs */
    Pint      max_simul_ack,          /* max simul. ack. procs */
    Pint_list loc_meas_proc_ids,      /* avail locator meas proc ids */
    Pint_list stroke_meas_proc_ids,   /* avail stroke meas proc ids */
    Pint_list val_meas_proc_ids,      /* avail valuator meas proc ids */
    Pint_list choice_meas_proc_ids,   /* avail choice meas proc ids */
    Pint_list pick_meas_proc_ids,     /* avail pick meas proc ids */
    Pint_list string_meas_proc_ids,   /* avail string meas proc ids */
    Pint_list set_meas_proc_ids,      /* avail set meas proc ids */
    Pint_list composite_meas_proc_ids, /* avail compos meas proc ids */
    Pint_list trig_proc_ids,          /* avail trigger proc ids */
    Pint_list loc_echo_proc_ids,      /* avail locator echo proc ids */
    Pint_list stroke_echo_proc_ids,   /* avail stroke echo proc ids */
    Pint_list val_echo_proc_ids,      /* avail valuator echo proc ids */
    Pint_list choice_echo_proc_ids,   /* avail choice echo proc ids */
    Pint_list pick_echo_proc_ids,     /* avail pick echo proc ids */
    Pint_list string_echo_proc_ids,   /* avail string echo proc ids */
    Pint_list set_echo_proc_ids,      /* avail set echo proc ids */
    Pint_list comp_echo_proc_ids,     /* avail compos echo proc ids */
    Pint_list ack_proc_ids            /* avail ack. proc ids */
} Pset_fac;

```

Pset_measure SET MEASURE

```

typedef struct Pset_measure {
    Pin_class dev_class;             /* input class of set */
    Pint      set_size;              /* size of measure set */
    _Pin_class_measure *measure_set; /* array of measures of same */
                                     /* class */
} Pset_measure;

```

Psupport_indication SUPPORT INDICATION

```

typedef enum {
    PSI_NOT_SUPPORTED = 0,
    PSI_SUPPORTED = 1
} Psupport_indication;

```

Ptarg_addr TARGET ADDRESS

```
typedef struct {  
    Ptarg_type      ref_targ;      /* reference target      */  
    Pint            offset;        /* offset from reference target*/  
} Ptarg_addr;
```

Ptarg_data_st TARGET DATA STATE

```
typedef enum {  
    PTARG_DATA_ST_ABSENT = 0,  
    PTARG_DATA_ST_PRESENT = 1  
} Ptarg_data_st;
```

Ptarg_empty_st TARGET EMPTY

```
typedef enum {  
    PTARG_EMPTY_ST_EMPTY = 0,  
    PTARG_EMPTY_ST_NOT_EMPTY = 1  
} Ptarg_empty_st;
```

Ptarget_facS TARGET FACILITIES

```
typedef struct {  
    Pint            num_avail_targets; /* number of available targets */  
} Ptarget_facS;
```

Ptarg_op_list TARGET OPERATION LIST

```
typedef struct {  
    Pint            num_ops;          /* number of target operations */  
    Ptarg_op        *targ_ops;        /* list of target operations   */  
} Ptarg_op_list;
```

Ptarg_type TARGET TYPE

```
typedef enum {  
    PBASE_TARG = 0,  
    PREND_TARG = 1,  
    PDISP_TARG = 2  
}  
Ptarg_type;
```

Ptarg_type_list TARGET TYPE LIST

```
typedef struct {  
    Pint          num_targ_types; /* number of target types */  
    Ptarg_type    *targ_types;   /* list of target types */  
}  
Ptarg_type_list;
```

Ptest_comp_rel TEST COMPARISON RELATIONAL

```
typedef enum {  
    PTRL_EQUAL = 0,  
    PTRL_NOT_EQUAL = 1,  
    PTRL_GREATER = 2,  
    PTRL_LESS = 3,  
    PTRL_GREATER_OR_EQUAL = 4,  
    PTRL_LESS_OR_EQUAL = 5  
}  
Ptest_comp_rel;
```

Ptest_comp_logical TEST COMPARISON LOGICAL

```
typedef enum {  
    PTLG_BITWISE_AND = 1,  
    PTLG_BITWISE_OR = 2,  
    PTLG_BITWISE_XOR = 3  
}  
Ptest_comp_logical;
```

Ptext_mask TEXT MASK

```
typedef struct {
    unsigned int font:1;
    unsigned int precision:1;
    unsigned int char_expan:1;
    unsigned int char_space:1;
    unsigned int colr:1;
    unsigned int :27;
} Ptext_mask;
```

Ptexture_binding TEXTURE BINDING

```
typedef struct {
    Pint    image_res_id;    /* texture image resource identifier */
    Pint    rendering_order; /* rendering order */
} Ptexture_binding;
```

Ptexture_facs TEXTURE FACILITIES

```
typedef struct {
    Pint_list coord_srcs;    /* list avail. coordinate sources */
    Pint_list compos_methods; /* list avail. composition methods */
    Pint_list min_methods;   /* list avail. minification methods */
    Pint_list mag_methods;   /* list avail. magnification methods */
    Pint_list bound_cond;    /* list avail. boundary conditions */
    Pint_list clamp_methods; /* list avail. boundary clamp methods */
    Pint_list render_orders; /* list avail. rendering orders */
    Pint    num_pred_inds;   /* number predefined texture indices */
} Ptexture_facs;
```

Ptexture_map_fac TEXTURE MAPPING FACILITIES

```
typedef struct {
    Pint      max_simul;          /* max number simultaneously      */
                                   /* applicable textures             */
    Pint_list perspect_corr;      /* list of available perspective  */
                                   /* correction methods             */
    Pint_list sampling_freqs;     /* list avail. sampling frequencies */
    Pint_list opt_hints;          /* list of available resource     */
                                   /* optimization hints             */
    Ptup_util usage;              /* utilization of texture usage   */
                                   /* priorities                     */
    Pint_list image_res_types;    /* list of image resource types   */
                                   /* available for texture mapping  */

} Ptexture_map_fac;
```

Ptexture_mask TEXTURE MASK

```
typedef struct {
    unsigned int coord_src:1;
    unsigned int coord_src_data:1;
    unsigned int orientation:1;
    unsigned int compos_method:1;
    unsigned int compos_data:1;
    unsigned int min_method:1;
    unsigned int max_method:1;
    unsigned int bound_conds:1;
    unsigned int clamp_method:1;
    unsigned int clamp_data:1;
    unsigned int depth_sampl_hint:1;
    unsigned int freq_wt_hints:1;
    unsigned int image_res_id:1;
    unsigned int rendering_order:1;
    unsigned int :18;

} Ptexture_mask;
```

Ptexture_param TEXTURE PARAMETRIZATION

```
typedef struct {
    Pcoord_src      coord_src;          /* coordinate source and data */
    Pmatrix3        orientation;         /* orientation matrix         */

} Ptexture_param;
```

Ptexture_rep TEXTURE REPRESENTATION

```

typedef struct {
    Ptexture_param    param;           /* texture parametrization */
    Ptexture_compos    compos;         /* texture composition */
    Ptexture_sampling  sampling;       /* texture sampling */
    Ptexture_binding   binding;        /* texture binding */
} Ptexture_rep;

```

Ptexture_rep TEXTURE RESOURCE OPTIMIZATION HEURISTICS

```

typedef struct {
    Pint              opt_hint;        /* optimization hint */
    Pint_list         usage_priorities; /* texture usage priorities */
} Ptexture_res_opt_heur;

```

Ptexture_sampling TEXTURE SAMPLING

```

typedef struct {
    Pint              min_method;      /* minification method */
    Pint              mag_method;      /* magnification method */
    Pint              bound_conds[3];  /* boundary conditions */
    Pclamp_method     clamp;           /* boundary clamp method & data */
    Pfloat             depth_sampl_hint; /* depth sampling hint */
    Pfloat             freq_wt_hints[3]; /* frequency weight hints */
} Ptexture_sampling;

```

Ptrav_res TRAVERSAL RESOURCE

```

typedef struct {
    Pint              id;              /* traversal resource identifier */
    Pint              type;            /* traversal resource type */
} Ptrav_res;

```

Ptrav_res_facs TRAVERSAL RESOURCE FACILITIES

```
typedef struct {
    Ptrav_res_list avail_trav_res; /* list of avail. traversal resources
                                   */
} Ptrav_res_facs;
```

Ptrav_res_list TRAVERSAL RESOURCE LIST

```
typedef struct {
    Pint          num_trav_res; /* number of traversal resources */
    Ptrav_res     *trav_res;    /* list of traversal resources */
} Ptrav_res_list;
```

Ptrav_type TRAVERSAL TYPE

```
typedef enum {
    PTRAV_RENDER = 0,
    PTRAV_PICK = 1
} Ptrav_type;
```

Ptrig_process TRIGGER PROCESS

```
typedef struct {
    Ptrig_type    type;
    Pint          process_id;
} Ptrig_process;
```

Ptrig_process_list TRIGGER PROCESS LIST

```
typedef struct {
    Pint          count;
    Ptrig_process *procs;
} Ptrig_process_list;
```

Ptrig_type TRIGGER TYPE

```
typedef enum {
    PTRIGGER_BREAK = 0,
    PTRIGGER_SELECT = 1,
    PTRIGGER_EVENT = 2,
    PTRIGGER_DELETE = 3
} Ptrig_type;
```

Ptup_util TEXTURE USAGE PRIORITIES UTILIZATION

```
typedef enum {
    PTUP_UTILIZED_NO = 0,
    PTUP_UTILIZED_YES = 1
} Ptup_util;
```

Pval_facs VALUATOR FACILITIES

```
typedef struct {
    Pint      max_simul_trig, /* max simul. trigger procs */
    Pint      max_simul_echo, /* max simul. echo procs */
    Pint      max_simul_ack, /* max simul. acknowledgement procs */
    Pint_list meas_proc_ids, /* available measure process ids */
    Pint_list trig_proc_ids, /* available trigger process ids */
    Pint_list echo_proc_ids, /* available echo process ids */
    Pint_list ack_proc_ids /* available acknowledgement process ids */
} Pval_facs;
```

Pview_attach VIEW ATTACHMENT

```
typedef struct {
    Pint      view_ws_id; /* workstation id for view */
    Pint      view_ind; /* view index */
    Pint      view_action_type; /* view action type */
    Pint      transfer_type; /* measure transfer type */
    Pint      view_upd_method; /* view update method */
} Pview_attach;
```

Pview_status VIEW_STATUS

```
typedef enum {  
    PVIEW_ST_CORRESPOND = 0,  
    PVIEW_ST_DIFFERENT = 1  
} Pview_status;
```

Pwatch_enable WATCH ENABLE FLAG

```
typedef enum {  
    PWATCH_OFF = 0,  
    PWATCH_ON = 1  
} Pwatch_enable;
```

Pws_st_tables_highl LENGTHS OF WORKSTATION STATE TABLES HIGHLIGHTING

```
typedef struct {  
    Pint    highl_rep;          /* max. # of highlighting table entries */  
} Pws_st_tables_highl;
```

Pws_st_tables_texture LENGTHS OF WORKSTATION STATE TABLES TEXTURE

```
typedef struct {  
    Pint    texture_rep;       /* max. # of texture table entries */  
} Pws_st_tables_texture;
```

12 C Full PHIGS profile macro definitions

12.1 Function identifiers

The error functions require a unique mapping of the Full PHIGS functions to a set of numbers. The names for these function identifiers are the same as the bound Full PHIGS names except that the sentinel character has been replaced by Pfn_.

Function Name Macro	Function Number
#define Pfn_ws_type_create	(268)
#define Pfn_ws_type_set	(269)
#define Pfn_ws_type_get	(270)
#define Pfn_ws_type_destroy	(271)
#define Pfn_redraw_all_structs_from_grp	(272)
#define Pfn_redraw_all_structs_on_targ	(273)
#define Pfn_redraw_all_structs_from_grp_on_targ	(274)
#define Pfn_upd_targ	(275)
#define Pfn_define_post_grp	(276)
#define Pfn_undefine_post_grp	(277)
#define Pfn_set_post_grp_status	(278)
#define Pfn_set_post_grp_priority	(279)
#define Pfn_set_post_grp_backg_style	(280)
#define Pfn_set_post_grp_backg_method	(281)
#define Pfn_set_post_grp_border_indic	(282)
#define Pfn_set_post_grp_border_ind	(283)
#define Pfn_assoc_image_res	(284)
#define Pfn_disassoc_image_res	(285)
#define Pfn_set_dc_clip_regions3	(286)
#define Pfn_set_dc_clip_regions	(287)
#define Pfn_set_targ_manip_mode	(288)
#define Pfn_set_targ_dispos	(289)
#define Pfn_set_disp_targ	(290)
#define Pfn_set_rend_targ	(291)
#define Pfn_clear_targ	(292)
#define Pfn_copy_targ	(293)
#define Pfn_create_targ	(294)
#define Pfn_destroy_targ	(295)
#define Pfn_set_st_visual_rep	(296)
#define Pfn_set_targ_st_visual_rep	(297)
#define Pfn_assoc_trav_res	(298)
#define Pfn_disassoc_trav_res	(299)
#define Pfn_manip_trav_res	(300)
#define Pfn_reset_all_trav_res	(301)
#define Pfn_ret_window_system_colr	(302)
#define Pfn_set_appl_int	(303)
#define Pfn_set_appl_real	(304)
#define Pfn_circle3	(305)
#define Pfn_circle	(306)
#define Pfn_circular_arc3	(307)

```

#define Pfn_circular_arc (308)
#define Pfn_ellipse3 (309)
#define Pfn_ellipse (310)
#define Pfn_elliptical_arc3 (311)
#define Pfn_elliptical_arc (312)
#define Pfn_fill_circle3 (313)
#define Pfn_fill_circle (314)
#define Pfn_circular_arc_close3 (315)
#define Pfn_circular_arc_close (316)
#define Pfn_fill_ellipse3 (317)
#define Pfn_fill_ellipse (318)
#define Pfn_elliptical_arc_close3 (319)
#define Pfn_elliptical_arc_close (320)
#define Pfn_set_high1_ind (321)
#define Pfn_set_linetype_adapt (322)
#define Pfn_set_linetype_cont (323)
#define Pfn_set_linetype_offset (324)
#define Pfn_set_linecap (325)
#define Pfn_set_linejoin (326)
#define Pfn_set_linemitre_limit (327)
#define Pfn_set_edgetype_adapt (328)
#define Pfn_set_edgetype_cont (329)
#define Pfn_set_edgetype_offset (330)
#define Pfn_set_edgecap (331)
#define Pfn_set_edgejoin (332)
#define Pfn_set_edgemitre_limit (333)
#define Pfn_set_high1_method (334)
#define Pfn_set_transparency (335)
#define Pfn_set_back_transparency (336)
#define Pfn_set_alpha_src_sel (337)
#define Pfn_set_alpha_data_sel_ind (338)
#define Pfn_set_active_textures (339)
#define Pfn_set_back_active_textures (340)
#define Pfn_set_texture_perspect_corr (341)
#define Pfn_set_texture_sampling_freq (342)
#define Pfn_set_texture_res_opt_heur (343)
#define Pfn_set_cond_flags (344)
#define Pfn_set_cond_flags_from_tests (345)
#define Pfn_set_line_rep_full (346)
#define Pfn_set_line_rep_mask (347)
#define Pfn_set_marker_rep_mask (348)
#define Pfn_set_text_rep_mask (349)
#define Pfn_set_int_rep_mask (350)
#define Pfn_set_edge_rep_full (351)
#define Pfn_set_edge_rep_mask (352)
#define Pfn_set_ext_pat_rep (353)
#define Pfn_set_pat_rep_mask (354)
#define Pfn_set_texture_rep (355)
#define Pfn_set_texture_rep_mask (356)
#define Pfn_set_texture_param (357)

```

```
#define Pfn_set_texture_composition (358)
#define Pfn_set_texture_sampling (359)
#define Pfn_set_texture_binding (360)
#define Pfn_set_highl_rep (361)
#define Pfn_set_transparency_mode (362)
#define Pfn_set_transparency_thresholds (363)
#define Pfn_set_refl_rep_mask (364)
#define Pfn_set_appl_filter (365)
#define Pfn_create_mipmap_texture (366)
#define Pfn_define_linetype (367)
#define Pfn_define_marker_type (368)
#define Pfn_set_view_ref_point3 (369)
#define Pfn_set_view_ref_point (370)
#define Pfn_set_view_plane_norm (371)
#define Pfn_set_view_up_vec3 (372)
#define Pfn_set_view_up_vec (373)
#define Pfn_set_view_win_limits (374)
#define Pfn_set_proj_vp3 (375)
#define Pfn_set_proj_vp (376)
#define Pfn_set_proj_type (377)
#define Pfn_set_proj_ref_point (378)
#define Pfn_set_view_plane_dist (379)
#define Pfn_set_front_plane_dist (380)
#define Pfn_set_back_plane_dist (381)
#define Pfn_set_xy_clip_indicator (382)
#define Pfn_set_front_clip_indicator (383)
#define Pfn_set_back_clip_indicator (384)
#define Pfn_upd_view_rep (385)
#define Pfn_map_dc_to_wsc (386)
#define Pfn_map_wsc_to_dc (387)
#define Pfn_map_dc_to_wc (388)
#define Pfn_open_di_struct (389)
#define Pfn_close_di_struct (390)
#define Pfn_inst_struct (391)
#define Pfn_cond_exec_struct (392)
#define Pfn_cond_inst_struct (393)
#define Pfn_cond_return (394)
#define Pfn_cond_skip_elements (395)
#define Pfn_cond_skip_to_label (396)
#define Pfn_push_st (397)
#define Pfn_pop_st (398)
#define Pfn_copy_elem_struct (399)
#define Pfn_copy_elem_range_struct (400)
#define Pfn_copy_elems_between_labels_struct (401)
#define Pfn_move_elem (402)
#define Pfn_move_elem_range (403)
#define Pfn_move_elems_between_labels (404)
#define Pfn_set_watch_on_elem_range (405)
#define Pfn_end_watch_on_elem_range (406)
#define Pfn_post_struct_to_grp (407)
```

```

#define Pfn_unpost_structs_from_grps (408)
#define Pfn_unpost_all_structs_from_grp (409)
#define Pfn_post_di_struct (410)
#define Pfn_post_di_struct_to_grp (411)
#define Pfn_unpost_di_struct (412)
#define Pfn_renew_di_state (413)
#define Pfn_set_di_mode (414)
#define Pfn_mark_multi_pass_start (415)
#define Pfn_mark_multi_pass_compl (416)
#define Pfn_mark_pass_start (417)
#define Pfn_mark_pass_compl (418)
#define Pfn_ret_num_passes_req (419)
#define Pfn_set_set_pick_filter (420)
#define Pfn_set_composite_pick_filter (421)
#define Pfn_set_di_pick_filter (422)
#define Pfn_set_di_pick_corr_point3 (423)
#define Pfn_set_di_pick_corr_point (424)
#define Pfn_set_pick_mapping_data (425)
#define Pfn_map_dc_point_to_pick_paths (426)
#define Pfn_define_locator (427)
#define Pfn_define_stroke (428)
#define Pfn_define_valuator (429)
#define Pfn_define_choice (430)
#define Pfn_define_pick (431)
#define Pfn_define_string (432)
#define Pfn_create_set_measure (433)
#define Pfn_define_set (434)
#define Pfn_create_composite_measure (435)
#define Pfn_define_composite (436)
#define Pfn_undefine_locator (437)
#define Pfn_undefine_stroke (438)
#define Pfn_undefine_valuator (439)
#define Pfn_undefine_choice (440)
#define Pfn_undefine_pick (441)
#define Pfn_undefine_string (442)
#define Pfn_destroy_set_measure (443)
#define Pfn_undefine_set (444)
#define Pfn_destroy_composite_measure (445)
#define Pfn_undefine_composite (446)
#define Pfn_init_set3 (447)
#define Pfn_init_set (448)
#define Pfn_init_composite3 (449)
#define Pfn_init_composite (450)
#define Pfn_set_set_mode (451)
#define Pfn_set_composite_mode (452)
#define Pfn_req_set3 (453)
#define Pfn_req_set (454)
#define Pfn_req_composite3 (455)
#define Pfn_req_composite (456)
#define Pfn_sample_set3 (457)

```

```

#define Pfn_sample_set (458)
#define Pfn_sample_composite3 (459)
#define Pfn_sample_composite (460)
#define Pfn_get_set3 (461)
#define Pfn_get_set (462)
#define Pfn_get_composite3 (463)
#define Pfn_get_composite (464)
#define Pfn_attach_lid_to_view (465)
#define Pfn_detach_lid_from_view (466)
#define Pfn_attach_lid_to_light_src (467)
#define Pfn_detach_lid_from_light_src (468)
#define Pfn_init_di_pick3 (469)
#define Pfn_init_di_pick (470)
#define Pfn_enable_di_pick (471)
#define Pfn_disable_di_pick (472)
#define Pfn_trans_di_pick_set (473)

```

Pages 76

12.2 Error codes

```

/* State Errors */
#define PE_NOT_DISO (8) /* Ignoring function, func-
                        tion requires state
                        (PHOP,*,DISO,*) */

#define PE_NOT_RETAINED_STOP_ONLY (9) /* Ignoring function, func-
                        tion requires state
                        (PHOP,*,STOP,*) */

#define PE_NOT_WSOP_AND_DISO (10) /* Ignoring function, func-
                        tion requires state
                        (PHOP,WSOP,DISO,*) */

/* Workstation Errors */
#define PE_BAD_TARG_OP (65) /* Ignoring function, one of
                        the target operations is
                        not supported */

#define PE_INVALID_TRAV_RES (66) /* Ignoring function, the
                        resource is not valid */

#define PE_TRAV_RES_ASSOC_TARG (67) /* Ignoring function, the
                        traversal resource is
                        already associated with a
                        target */

#define PE_TRAV_RES_NO_DISASSOC (68) /* Ignoring function, the
                        resource cannot be disas-
                        sociated */

#define PE_INCOMPAT_TRAV_RES (69) /* Ignoring function, source
                        and destination traversal
                        resources are incompatible
                        */

```

#define PE_DI_STRUCT_NOT_POSTED	(71)	/* Ignoring function, the direct interpretation structure is not posted on the specified workstation */
#define PE_DI_REND_TRAV_PROC_ACTIVE	(72)	/* Ignoring function, the direct interpretation render traversal process is already active on the specified workstation */
#define PE_DI_REND_TRAV_PROC_NOT_ACTIVE	(73)	/* Ignoring function, the direct interpretation traversal process is not active on the specified workstation */
#define PE_CANNOT_CREATE_TARGET	(74)	/* Ignoring function, an additional target could not be created */
#define PE_NUM_TARGETS_NOT_REDUCED	(75)	/* Ignoring function, the number of targets cannot be reduced below the default number available for the respective workstation type */
#define PE_TARG_NOT_DESTROYED	(76)	/* Ignoring function, the target could not be destroyed */
#define PE_DISP_REND_TARG_NOT_DESTROYED	(77)	/* Ignoring function, neither the display target nor the rendering target can be destroyed */
#define PE_MULTIPASS_IN_PROGRESS	(78)	/* Ignoring function, a multi-pass operation is already in progress */
#define PE_MULTI_PASS_NOT_IN_PROGRESS	(79)	/* Ignoring function, a multi-pass operation is not in progress */
#define PE_PASS_DEF_IN_PROGRESS	(80)	/* Ignoring function, a pass definition is already in progress */
#define PE_PASS_DEF_NOT_IN_PROGRESS	(81)	/* Ignoring function, a pass definition is not in progress */
#define PE_LT_SRC_WS_NO_OUT_CAPABILITY	(82)	/* Ignoring function, the specified light source workstation does not have output capability (i.e, the workstation category is neither OUTPUT, OUTIN, nor MO) */
#define PE_POST_GRP_DEF	(83)	/* Ignoring function, the posting group has already been defined */

#define PE_POST_GRP_NOT_DEF	(84) /* Ignoring function, the posting group has not been defined */
#define PE_POST_GRP_ID_LESS_THAN_ONE	(85) /* Ignoring function, the posting group identifier is less than one */
#define PE_MAX_POST_GRP_EXCEEDED	(86) /* Ignoring function, defining this posting group would exceed the maximum number of posting groups supported on the workstation */
#define PE_IMAGE_RES_NOT_DEF	(87) /* Ignoring function, image resource not defined */
#define PE_BAD_IMAGE_SPEC_METHOD	(88) /* Ignoring function, the image resource image specification method is not supported for this operation */
#define PE_IMAGE_RES_CAP_NOT_SUP	(89) /* Ignoring function, image resource capability is not supported on the workstation */
#define PE_SPEC_IMAGE_RES_NOT_DEF	(90) /* Ignoring function, the specified image resource has not been defined */
#define PE_MAX_IMAGE_RES_EXCEEDED	(91) /* Ignoring function, associating this image resource would exceed the maximum number of entries allowed in the workstation image resource table */
#define PE_IMAGE_RES_EXCEEDS_CAP_WS	(92) /* Ignoring function, the image resource exceeds the capabilities of the specified workstation */
#define PE_VW_WS_OF_CATEGORY_MI	(93) /* Ignoring function, the specified view workstation is of category MI */
#define PE_LID_WS_NOT_IN_NOR_OUTIN	(94) /* Ignoring function, the specified LID workstation is neither of category INPUT nor of category OUTIN */
#define PE_NEW_WS_TYPE_NOT_REALIZED	(95) /* Warning, Not all attributes were fully realized during the creation of the new workstation type */
#define PE_WS_TYPE_CANNOT_BE_MODIFIED	(96) /* Ignoring function, workstation type is a default type or bound to a workstation and cannot be modified */

/* Output Attribute Errors */

#define PE_NO_STATE_SAVED

(141) /* Ignoring function, no state has been saved */

#define PE_SPEC_PAT_TYPE_NOT_SUP

(142) /* Ignoring function, the specified pattern type is not supported on the specified workstation */

#define PE_PAT_TYPE_NOT_SUP_ON_INQ

(143) /* Ignoring function, pattern type of requested pattern table entry is not supported by this inquiry */

#define PE_MAX_VIEWS_EXCEEDED

(150) /* Ignoring function, setting this view table entry would exceed the maximum number of entries allowed */

#define PE_INVALID_LIMITS

(151) /* Ignoring function, $XMIN \geq XMAX$, $YMIN \geq YMAX$, $ZMIN > ZMAX$, $UMIN \geq UMAX$ or $VMIN \geq VMAX$ */

#define PE_INVALID_VIEWPORT

(152) /* Ignoring function, invalid viewport: $XMIN \geq XMAX$, $YMIN \geq YMAX$, $ZMIN > ZMAX$ */

#define PE_INVALID_VIEW_CLIP_LIM

(153) /* Ignoring function, invalid view clipping limits: $XMIN \geq XMAX$, $YMIN \geq YMAX$, $ZMIN > ZMAX$ */

#define PE_VIEW_CLIP_LIM_NOT_NPC

(154) /* Ignoring function, the view clipping limits are not within NPC range */

#define PE_PROJ_VP_LIMITS_NOT_NPC

(155) /* Ignoring function, the projection viewport limits are not within NPC range */

#define PE_WS_WIN_LIM_NOT_NPC

(156) /* Ignoring function, the workstation window limits are not within NPC range */

#define PE_WS_VP_NOT_IN_DISPLAY_SPACE

(157) /* Ignoring function, the workstation viewport is not within display space */

#define PE_INVALID_VIEW_PLANES

(158) /* Ignoring function, front plane and back plane distances same and z-extent of projection viewport non-zero */

#define PE_VPN_LEN_ZERO

(159) /* Ignoring function, the view plane normal has length zero */

#define PE_VUP_LEN_ZERO

(160) /* Ignoring function, the view up vector has length zero */

#define PE_VUP_VPN_PARALLEL (161) /* Ignoring function, view up and view plane normal vectors parallel */
 #define PE_PRP_BETW_FRONT_BACK (162) /* Ignoring function, the projection reference point is between the front and back planes */
 #define PE_PRP_ON_VIEW_PLANE (163) /* Ignoring function, the projection referece point cannot be positioned on the view plane */
 #define PE_BACK_PLN_BEFORE_FRONT_PLN (164) /* Ignoring function, the back plane is in front of the front plane */
 #define PE_HIGHL_IND_LT_ONE (165) /* Ignoring function, the highlighting index is less than one */
 #define PE_HIGHL_METHOD_NOT_AVAIL (166) /* Ignoring function, the specified highlighting method is not available on the specified workstation */
 #define PE_LINETYPE_NOT_DEFINABLE (167) /* Ignoring function, the specified linetype does not reference a definable linetype */
 #define PE_MAX_DEF_LINETYPES_EXCEEDED (168) /* Ignoring function, setting this table entry would exceed the maximum number of entries allowed in the definable linetype table */
 #define PE_LINETYPE_NOT_DEFINED (169) /* Ignoring function, the specified linetype has not been defined */
 #define PE_LINETYPE_NOT_SUP (170) /* Warning, this linetype definition is not supported on at least one of the available workstation types */
 #define PE_LINETYPE_DEF_NOT_AVAIL (171) /* Ignoring function, the specified standard or implementation-defined linetype definition is not available */
 #define PE_MARKER_TYPE_NOT_DEFINABLE (172) /* Ignoring function, the specified marker type does not reference a definable marker type */
 #define PE_MAX_DEF_MARKER_TYPES_EXCEEDED (173) /* Ignoring function, setting this table entry would exceed the maximum number of entries allowed

in the definable marker type table */

#define PE_MARKER_TYPE_NOT_DEFINED (174) /* Ignoring function, the specified marker type has not been defined */

#define PE_MARKER_SHAPE_INVALID (175) /* Ignoring function, the marker shape descriptor is invalid */

#define PE_MARKER_SHAPE_TYPE_NOT_SUP (176) /* Ignoring function, the specified marker shape type is not supported */

#define PE_MARKER_TYPE_DEF_NOT_AVAIL (177) /* Ignoring function, the specified standard or implementation defined marker type definition is not available */

#define PE_FILTER_SEL_INVALID (178) /* Ignoring function, the filter selection is invalid */

#define PE_FILTER_NOT_DEFINED (179) /* Ignoring function, the specified application filter has not been defined */

/* Input Errors */

#define PE_DI_PICK_TRAV_PROC_ACTIVE (264) /* Ignoring function, the direct interpretation pick traversal process is already active on the specified workstation */

#define PE_DI_PICK_TRAV_PROC_NOT_ACTIVE (265) /* Ignoring function, the direct interpretation pick traversal process is not active on the specified workstation */

#define PE_BAD_PICK_TYPE (266) /* Ignoring function, the specified pick type is not available on the specified workstation */

#define PE_LISTED_MEAS_PROC_INVALID (267) /* Ignoring function, one of the listed measure processes is invalid */

#define PE_LISTED_TRIG_PROC_INVALID (268) /* Ignoring function, one of the listed trigger processes is invalid */

#define PE_LISTED_ECHO_PROC_INVALID (269) /* Ignoring function, one of the listed echo processes is invalid */

#define PE_LISTED_ACK_PROC_INVALID (270) /* Ignoring function, one of the listed acknowledgment processes is invalid */

#define PE_LID_NR_IN_USE (271) /* Ignoring function, device number already in use */

```

#define PE_NR_MEAS_INVALID          (272) /* Ignoring function, number
                                         of measures is invalid */
#define PE_MEAS_ID_NOT_AVAIL        (273) /* Ignoring function, the
                                         specified measure identi-
                                         fier is not available on
                                         the specified workstation
                                         */
#define PE_MEAS_ID_IN_USE           (274) /* Ignoring function, the
                                         specified measure identi-
                                         fier is currently part of
                                         a set or composite logi-
                                         cal input device defini-
                                         tion */
#define PE_NO_PICK_MEASURE          (275) /* Ignoring function, the
                                         specified set or compos-
                                         ite device does not have a
                                         pick measure */
#define PE_LID_INAPPROP_FOR_VW_ACTION (276) /* Ignoring function, the
                                         logical input device class
                                         specified is inappropriate
                                         for the view action
                                         specified */
#define PE_LID_INAPPROP_FOR_LT_ACT  (277) /* Ignoring function, the
                                         input device class speci-
                                         fied is inappropriate for
                                         the light action speci-
                                         fied */
#define PE_LT_ACT_INAPPROP_FOR_LT_SRC (278) /* Ignoring function, the
                                         light action is inappro-
                                         priate for the light
                                         source specified */

/* Miscellaneous Errors */
#define PE_TEST_OP_INVALID          (451) /* Ignoring function, invalid
                                         test operator for test type
                                         */
#define PE_NO_WINDOW_SYSTEM         (452) /* Ignoring function, the
                                         specified workstation is
                                         not operating in a window
                                         management system envrion-
                                         ment */
#define PE_WIN_SYS_COLR_NOT_DETER   (453) /* Ignoring function, the
                                         window system colour can-
                                         not be determined */

/* Additional Output Attribute Errors */
#define PE_TEXTR_COORD_SRC_NOT_AVAIL (600) /* Ignoring function, the
                                         specified coordinate
                                         source is not available on
                                         the specified workstation
                                         */
#define PE_DATA_VALUE_IND_LESS_1    (601) /* Ignoring function, the
                                         specified data value index
                                         is less than one */

```

```

#define PE_TEXTR_COMPOS_METHOD_NOT_AVAIL          (602) /* Ignoring function, the
                                                    specified composition
                                                    method is not available on
                                                    the specified workstation
                                                    */
#define PE_TEXTR_MIN_METHOD_NOT_AVAIL             (603) /* Ignoring function, the
                                                    specified minification
                                                    method is not available on
                                                    the specified workstation
                                                    */
#define PE_TEXTR_MAG_METHOD_NOT_AVAIL             (604) /* Ignoring function, the
                                                    specified magnification
                                                    method is not available on
                                                    the specified workstation
                                                    */
#define PE_BOUND_COND_NOT_AVAIL                   (605) /* Ignoring function, the
                                                    specified boundary condi-
                                                    tion is not available on
                                                    the specified workstation
                                                    */
#define PE_BOUND_CLAMP_METHOD_NOT_AVAIL           (606) /* Ignoring function, the
                                                    specified boundary clamp
                                                    method is not available on
                                                    the specified workstation
                                                    */
#define PE_DEPTH_SAMPL_BIAS_OUT_OF_RANGE          (607) /* Ignoring function, the
                                                    specified depth sampling
                                                    bias hint is out of range
                                                    */
#define PE_TEXTR_IMAGE_RES_NOT_DEFINED            (608) /* Ignoring function, the
                                                    specified texture image
                                                    resource identifier is not
                                                    defined on the specified
                                                    workstation */
#define PE_RENDERING_ORDER_NOT_AVAIL              (612) /* Ignoring function, the
                                                    specified rendering order
                                                    is not available on the
                                                    specified workstation */

```

12.3 Miscellaneous

12.3.1 Hatch styles

```

#define PHATCH_HORIZ                               (1)
#define PHATCH_VERT                               (2)
#define PHATCH_POS_SLOPE                          (3)
#define PHATCH_NEG_SLOPE                          (4)
#define PHATCH_HORIZ_VERT_CROSS                   (5)
#define PHATCH_POS_NEG_SLOPE_CROSS                (6)

```

12.3.2 Prompt and echo types (additional items)

```
#define PPICK_HIGHL_PRIM (4)
#define PPICK_HIGHL_PRIM_GROUP (5)
#define PPICK_HIGHL_STRUCT_NETWORK (6)
```

12.3.3 Colour types (additional items)

```
#define PCOLR_RGBA (5)
#define PCOLR_CIELUVA (6)
#define PCOLR_HSVA (7)
#define PCOLR_HLSA (8)
```

12.3.4 Direct interpretation pick prompt and echo types

```
#define PDI_PICK_HIGHL (1)
```

12.3.5 Pick types

```
#define PPICK_TYPE_WS_DEP (1)
#define PPICK_TYPE_PICK_FIRST (2)
#define PPICK_TYPE_PICK_LAST (3)
#define PPICK_TYPE_PICK_CLOSEST (4)
```

12.3.6 Target manipulation modes

```
#define PTARG_MANIP_AUTO (1)
#define PTARG_MANIP_MANUAL (2)
```

12.3.7 Target operation types

```
#define PSET_REND_TARG (1)
#define PSET_DISP_TARG (2)
#define PCLEAR_TARG (3)
#define PCOPY_TARG (4)
```

12.3.8 Traversal resource operation types

```
#define PCLEAR_TRAV_RES (0)
#define PCOPY_TRAV_RES (1)
```

12.3.9 Traversal resource types

```
#define PTRAV_RES_Z_BUF (1)
#define PTRAV_RES_PAINT_BUF (2)
```

12.3.10 View update method

```
#define PVUM_APPLY_ALL (1)
#define PVUM_APPLY_ROTATION (2)
```

12.3.11 View action types

```

#define PVWA_ROT_ABOUT_U_VRC_AXIS (1)
#define PVWA_ROT_ABOUT_V_VRC_AXIS (2)
#define PVWA_ROT_ABOUT_N_VRC_AXIS (3)
#define PVWA_TRANS_U_VRC_AXIS_CLIP (4)
#define PVWA_TRANS_U_VRC_AXIS_NOCLIP (5)
#define PVWA_TRANS_V_VRC_AXIS_CLIP (6)
#define PVWA_TRANS_V_VRC_AXIS_NOCLIP (7)
#define PVWA_TRANS_N_VRC_AXIS (8)
#define PVWA_SCALE_WIN_UNIFORMLY (9)
#define PVWA_SCALE_VP_UNIFORMLY (10)
#define PVWA_SCALE_WIN_WIDTH (11)
#define PVWA_SCALE_VP_WIDTH (12)
#define PVWA_SCALE_WIN_HEIGHT (13)
#define PVWA_SCALE_VP_HEIGHT (14)
#define PVWA_TRANS_FRONT_CLIP_PLANE (15)
#define PVWA_TRANS_BACK_CLIP_PLANE (16)
#define PVWA_ROT_AROUND_VRP_ALONG_CYL_LAT (17)
#define PVWA_TRANS_EYE_FROM_VRP_OUT (18)
#define PVWA_TRANS_EYE_FROM_VRP_UP (19)
#define PVWA_ROT_EYE_FROM_VRP_UP (20)
#define PVWA_CHG_EYE_POS_WRT_VRP (21)
#define PVWA_CHG_VRP_POS_ROT_UP_WRT_PRP (22)
#define PVWA_CHG_VRP_POS_ROT_RL_WRT_PRP (23)

```

12.3.12 Measure transfer types

```

#define PMTT_MEASURE_CHANGE (1)
#define PMTT_EVENT_WITH_DISCARD (2)
#define PMTT_EVENT_WITH_PROPAGATION (3)

```

12.3.13 Background methods

```

#define PBACKGM_COLOUR_TABLE_0 (1)
#define PBACKGM_COLOUR_INDEX (2)
#define PBACKGM_COLOUR (3)
#define PBACKGM_IMAGE_RESOURCE (4)

```

12.3.14 Image specification methods

```

#define PIMGSM_UNCOMP_COLR_INDEX_ARRAY (1)
#define PIMGSM_UNCOMP_COLR_ARRAY (2)
#define PIMGSM_WINDOW_SYS_BITMAP (3)
#define PIMGSM_VIDEO_SIGNAL_CHAN_ID (4)
#define PIMGSM_LUMINANCE (5)
#define PIMGSM_LUMINANCE_ALPHA (6)
#define PIMGSM_MIPMAP_COLRS (7)
#define PIMGSM_MIPMAP_LUMINANCE (8)
#define PIMGSM_MIPMAP_LUMINANCE_ALPHA (9)

```

12.3.15 Pattern types

```
#define PPATT_COLOUR_INDEX (1)
#define PPATT_COLOUR (2)
#define PPATT_IMAGE_RESOURCE (3)
```

12.3.16 Marker Shape Types

```
#define PSHAPE_POLYLINE (1)
#define PSHAPE_FILL_AREA (2)
#define PSHAPE_CONVEX_FILL_AREA (3)
```

12.3.17 Test Methods

```
#define PTEST_ALWAYS_FAIL (0)
#define PTEST_ALWAYS_SUCCEED (1)
#define PTEST_EXTENT3 (2)
#define PTEST_EXTENT (3)
#define PTEST_BOUNDS3 (4)
#define PTEST_BOUNDS (5)
#define PTEST_NAMESET (6)
#define PTEST_APPL_INTEGER (7)
#define PTEST_APPL_REAL (8)
```

12.3.18 Filter Types

```
#define PFILTER_TYPE_INVIS (1)
#define PFILTER_TYPE_HIGHL (2)
#define PFILTER_TYPE_PICK (3)
#define PFILTER_TYPE_APPL (4)
```

12.3.12 Texture sampling frequency types

```
#define PTEXTRSF_PER_PIXEL (1)
#define PTEXTRSF_INTERP_DEP (2)
```

12.3.13 Texture optimization hints

```
#define PTEXTR_OPT_NO_HINT (1)
#define PTEXTR_OPT_SPEED (2)
#define PTEXTR_OPT_SPACE (3)
```

12.3.14 Alpha sources

```
#define PALPHASRC_TRANSPARENCY (1)
#define PALPHASRC_COLR_ASPECT (2)
#define PALPHASRC_FACET_COLR (3)
#define PALPHASRC_FACET_DATA (4)
#define PALPHASRC_VERTEX_COLR (5)
#define PALPHASRC_VERTEX_DATA (6)
```

12.3.15 Texture coordinate sources

```

#define PCOORDSRC_VERTEX_COORD_MC (1)
#define PCOORDSRC_VERTEX_COORD_WC (2)
#define PCOORDSRC_VERTEX_NORMAL_MC (3)
#define PCOORDSRC_VERTEX_NORMAL_WC (4)
#define PCOORDSRC_NURB_SURF_UV (5)
#define PCOORDSRC_DATA (6)
#define PCOORDSRC_REFL_SPHERE_VRC (7)
#define PCOORDSRC_REFL_SPHERE_WC (8)

```

12.3.16 Gamma channel selectors

```

#define PGCS_GAMMA_ONE (1)
#define PGCS_GAMMA_RED (1)
#define PGCS_GAMMA_TWO (2)
#define PGCS_GAMMA_GREEN (2)
#define PGCS_GAMMA_THREE (3)
#define PGCS_GAMMA_BLUE (3)

```

12.3.17 Texture composition methods

```

#define PCOMPOS_REPLACE (1)
#define PCOMPOS_MODULATE (2)
#define PCOMPOS_BLEND_ENVIRONMENT_COLR (3)
#define PCOMPOS_DECAL (4)
#define PCOMPOS_DECAL_BACKGROUND (5)

```

12.3.18 Minification methods

```

#define PMINM_SINGLE_BASE (1)
#define PMINM_LINEAR_BASE (2)
#define PMINM_SINGLE_IN_MIPMAP (3)
#define PMINM_LINEAR_IN_MIPMAP (4)
#define PMINM_SINGLE_BETWEEN_MIPMAPS (5)
#define PMINM_LINEAR_BETWEEN_MIPMAPS (6)

```

12.3.19 Magnification methods

```

#define PMAGM_SINGLE_BASE (1)
#define PMAGM_LINEAR_BASE (2)
#define PMAGM_SINGLE_IN_MIPMAP (3)
#define PMAGM_LINEAR_IN_MIPMAP (4)
#define PMAGM_SINGLE_BETWEEN_MIPMAPS (5)
#define PMAGM_LINEAR_BETWEEN_MIPMAPS (6)

```

12.3.20 Boundary conditions

```

#define PBOUND_COND_CLAMP_EXPLICIT_METHOD (1)
#define PBOUND_COND_CLAMP_BORDER (2)
#define PBOUND_COND_WRAP (3)
#define PBOUND_COND_MIRROR (4)

```

12.3.21 Boundary clamp methods

```
#define PBOUND_CLAMP_DISCONTINUE (1)
#define PBOUND_CLAMP_COLR (2)
```

12.3.22 Rendering orders

```
#define PRENDORDR_PRELIGHT (1)
#define PRENDORDR_POST_LIGHT (2)
```

12.3.23 Transparency modes

```
#define PTRANSPMODE_NONE (1)
#define PTRANSPMODE_SCREEN_DOOR (2)
#define PTRANSPMODE_ALPHA_BLEND (3)
#define PTRANSPMODE_TWO_PASS (4)
#define PTRANSPMODE_MULTIPASS (5)
```

12.3.24 Light source action types

```
#define PLTA_ADJ_LT_COLR_COMP_1 (1)
#define PLTA_ADJ_LT_COLR_COMP_2 (2)
#define PLTA_ADJ_LT_COLR_COMP_3 (3)
#define PLTA_ADJ_BRIGHT (4)
#define PLTA_ROT_AROUND_X_DIR_VEC (5)
#define PLTA_ROT_AROUND_Y_DIR_VEC (6)
#define PLTA_ROT_AROUND_Z_DIR_VEC (7)
#define PLTA_TRANS_X_LT_POS (8)
#define PLTA_TRANS_Y_LT_POS (9)
#define PLTA_TRANS_Z_LT_POS (10)
#define PLTA_ADJ_CONCENTRATION_EXP (11)
#define PLTA_ADJ_LT_SPREAD_ANGLE (12)
```

13 C Full PHIGS profile functions

13.1 Control functions

WORKSTATION TYPE CREATE

```
void pws_type_create (
    Pint          ws_type,          /* workstation type */
    const Pconfig_setting *settings_list, /* array of config. settings */
    Pint          *new_ws_type      /* OUT new workstation type */
);
```

WORKSTATION TYPE SET

```
void pws_type_set (
    Pint          ws_type,          /* workstation type */
    const Pconfig_setting *settings_list /* array of config. settings */
);
```

WORKSTATION TYPE GET

```
void pws_type_get (
    Pint          ws_type,          /* workstation type */
    const char    *setting_name,    /* configuration setting name */
    Pstore        store,            /* store object for returned value */
    Pconfig_value **setting_value   /* OUT configuration setting value */
);
```

WORKSTATION TYPE DESTROY

```
void pws_type_destroy (
    Pint          ws_type          /* workstation type */
);
```

REDRAW ALL STRUCTURES FROM POSTING GROUP

```

void predraw_all_structs_from_grp (
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* posting group          */
    Pbackg_redisplay redisplay_flag /* background redisplay flag */
);

```

REDRAW ALL STRUCTURES ON TARGET

```

void predraw_all_structs_on_targ (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *targ_addr, /* target address         */
    Pctrl_flag    ctrl_flag      /* control flag            */
);

```

REDRAW ALL STRUCTURES FROM POSTING GROUP ON TARGET

```

void predraw_all_from_grp_on_targ (
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* posting group          */
    Pbackg_redisplay redisplay_flag /* background redisplay flag */
    const Ptarg_addr *targ_addr, /* target address         */
    Pctrl_flag    ctrl_flag      /* control flag            */
);

```

UPDATE TARGET

```

void pupd_targ (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *targ_addr, /* target address         */
    Pregen_flag    regen_flag    /* update regeneration flag */
);

```

DEFINE POSTING GROUP

```

void pdefine_post_grp (
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* posting group identifier */
    Pint          ref_grp_id,     /* reference posting group id */
    Prel_pri      rel_pri,        /* relative priority */
    Pint          def_view_ind,   /* default view index */
    Ppost_grp_status post_grp_status, /* posting group status */
    Pbackg_style  backg_style,   /* posting group backg. style */
    const Pbackg_method*backg_method, /* posting group backg. method */
    Pborder_indic border_indic,  /* posting group border indic. */
    Pint          border_ind      /* posting group border index */
);

```

UNDEFINE POSTING GROUP

```

void pundefine_post_grp (
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id         /* posting group identifier */
);

```

SET POSTING GROUP STATUS

```

void pset_post_grp_status (
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* posting group identifier */
    Ppost_grp_status post_grp_status /* posting group status */
);

```

SET POSTING GROUP PRIORITY

```

void pset_post_grp_priority (
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* posting group identifier */
    Pint          ref_grp_id,     /* reference posting group id */
    Prel_pri      rel_pri        /* relative priority */
);

```

SET POSTING GROUP BACKGROUND STYLE

```

void pset_post_grp_backg_style (
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* posting group identifier */
    Pbackg_style  backg_style     /* posting group background style */
);

```

SET POSTING GROUP BACKGROUND METHOD

```

void pset_post_grp_backg_method (
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* posting group identifier */
    const Pbackg_method *backg_method /* posting group background method */
);

```

SET POSTING GROUP BORDER INDICATOR

```

void pset_post_grp_border_indicator (
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* posting group identifier */
    Pborder_indic border_indic    /* posting group border indicator */
);

```

SET POSTING GROUP BORDER INDEX

```

void pset_post_grp_border_ind (
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* posting group identifier */
    Pint          border_ind      /* posting group border index */
);

```

ASSOCIATE IMAGE RESOURCE

```

void passoc_image_res (
    Pint          ws_id,          /* workstation identifier */
    Pint          image_res_id,   /* image resource identifier */
    const Pint_size *dims,        /* m,n dimensions */
    const Pimage_res *image_res, /* image resource */
    Paccess_flag  *access_flag   /* OUT access flag */
);

```

DISASSOCIATE IMAGE RESOURCE

```

void pdisassoc_image_res (
    Pint          ws_id,          /* workstation identifier */
    Pint          image_res_id   /* image resource identifier */
);

```

SET DEVICE COORDINATE CLIP REGIONS 3

```

void pset_dc_clip_regions3 (
    Pint          ws_id,          /* workstation identifier */
    const Plimit3_list *limit_list /* list of DC clip regions */
);

```

SET DEVICE COORDINATE CLIP REGIONS

```

void pset_dc_clip_regions (
    Pint          ws_id,          /* workstation identifier */
    const Plimit_list *limit_list /* list of DC clip regions */
);

```

SET TARGET MANIPULATION MODE

```

void pset_targ_manip_mode (
    Pint          ws_id,          /* workstation identifier */
    Pint          targ_manip_mode /* target manipulation mode */
);

```

SET TARGET DISPOSITION

```

void pset_targ_dispos (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_op_list *targ_ops /* target operations list */
);

```

SET DISPLAY TARGET

```

void pset_disp_targ (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *targ_addr  /* target address */
);

```

SET RENDERING TARGET

```

void pset_rend_targ (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *targ_addr  /* target address */
);

```

CLEAR TARGET

```

void pclear_targ (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *targ_addr  /* target address */
);

```

COPY TARGET

```

void pcopy_targ (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *src_targ_addr, /* source target address */
    const Ptarg_addr *dest_targ_addr /* destination target address */
);

```

CREATE TARGET

```

void pcreate_targ (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *targ_addr   /* target address */
);

```

DESTROY TARGET

```

void pdestroy_targ (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *targ_addr   /* target address */
);

```

SET STATE OF VISUAL REPRESENTATION

```

void pset_st_visual_rep (
    Pint          ws_id,          /* workstation identifier */
    Pvisual_st    visual_st       /* state of visual representation */
);

```

SET TARGET STATE OF VISUAL REPRESENTATION

```

void pset_targ_st_visual_rep (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *targ_addr, /* target address */
    Pvisual_st    visual_st       /* state of visual representation */
);

```

ASSOCIATE TRAVERSAL RESOURCE

```
void passoc_trav_res (  
    Pint          ws_id,          /* workstation identifier */  
    Pint          res_id,         /* traversal resource identifier */  
    const Ptarg_addr *targ_addr /* source target address */  
);
```

DISASSOCIATE TRAVERSAL RESOURCE

```
void pdisassoc_trav_res (  
    Pint          ws_id,          /* workstation identifier */  
    Pint          res_id         /* traversal resource identifier */  
);
```

MANIPULATE TRAVERSAL RESOURCE

```
void pmanip_trav_res (  
    Pint          ws_id,          /* workstation identifier */  
    Pint          res_id,         /* traversal resource identifier */  
    const Ptrav_res_op *manip_data /* traversal resource operation */  
);
```

RESET ALL TRAVERSAL RESOURCES

```
void preset_all_trav_res (  
    Pint          ws_id          /* workstation identifier */  
);
```

RETRIEVE WINDOW SYSTEM COLOUR

```

void pret_window_system_colr (
    Pint      ws_id,          /* workstation identifier      */
    const Pgcrlr *colr,       /* colour sought              */
    Pstore     store,         /* store object for returned value */
    Pdata      **winsys_colr  /* OUT window system colour   */
);

```

SET APPLICATION INTEGER

```

void pset_appl_int (
    Pint      integer_id,     /* application integer identifier */
    Pint      value           /* value of application integer   */
);

```

SET APPLICATION REAL

```

void pset_appl_real (
    Pint      real_id,        /* application real identifier    */
    Pfloat    value           /* value of application real     */
);

```

13.2 Output primitive functions**CIRCLE 3**

```

void pcircle3 (
    const Ppoint3 *ctr_point, /* centre point                */
    Pfloat        radius,     /* radius                      */
    const Pvec3   ref_vecs[2] /* reference vectors           */
);

```

CIRCLE

```

void pcircle (
    const Ppoint    *ctr_point,    /* centre point    */
    Pfloat          radius         /* radius          */
);

```

CIRCULAR ARC 3

```

void pcircular_arc3 (
    const Ppoint3    *ctr_point,    /* centre point    */
    Pfloat           radius,        /* radius          */
    const Pvec3       ref_vecs[2],  /* reference vectors */
    Pfloat            start,        /* start angle     */
    Pfloat            end           /* end angle       */
);

```

CIRCULAR ARC

```

void pcircular_arc (
    const Ppoint    *ctr_point,    /* centre point    */
    Pfloat           radius,        /* radius          */
    Pfloat           start,        /* start angle     */
    Pfloat           end           /* end angle       */
);

```

ELLIPSE 3

```

void pellipse3 (
    const Ppoint3    *ctr_point,    /* centre point    */
    const Pvec3       *major_ref_vec, /* major axis reference vector */
    const Pvec3       *minor_ref_vec  /* minor axis reference vector */
);

```

ELLIPSE

```

void pellipse (
    const Ppoint    *ctr_point,      /* centre point          */
    const Pvec      *major_ref_vec,  /* major axis reference vector */
    const Pvec      *minor_ref_vec   /* minor axis reference vector */
);

```

ELLIPTICAL ARC 3

```

void pelliptical_arc3 (
    const Ppoint3    *ctr_point,      /* centre point          */
    const Pvec3      *major_ref_vec,  /* major axis reference vector */
    const Pvec3      *minor_ref_vec,  /* minor axis reference vector */
    Pfloat           start,           /* start angle           */
    Pfloat           end              /* end angle             */
);

```

ELLIPTICAL ARC

```

void pelliptical_arc (
    const Ppoint    *ctr_point,      /* centre point          */
    const Pvec      *major_ref_vec,  /* major axis reference vector */
    const Pvec      *minor_ref_vec,  /* minor axis reference vector */
    Pfloat           start,           /* start angle           */
    Pfloat           end              /* end angle             */
);

```

FILL CIRCLE 3

```

void pfill_circle3 (
    const Ppoint3    *ctr_point,      /* centre point          */
    Pfloat           radius,          /* radius                */
    const Pvec3      ref_vecs[2]     /* reference vectors      */
);

```

FILL CIRCLE

```

void pfill_circle (
    const Ppoint      *ctr_point,      /* centre point      */
    Pfloat            radius,          /* radius            */
);

```

CIRCULAR ARC CLOSE 3

```

void pcircular_arc_close3 (
    const Ppoint3      *ctr_point,      /* centre point      */
    Pfloat            radius,          /* radius            */
    const Pvec3        ref_vecs[2],     /* reference vectors  */
    Pfloat            start,           /* start angle       */
    Pfloat            end,             /* end angle         */
    Pclosure          type,            /* closure type      */
);

```

CIRCULAR ARC CLOSE

```

void pcircular_arc_close (
    const Ppoint      *ctr_point,      /* centre point      */
    Pfloat            radius,          /* radius            */
    Pfloat            start,           /* start angle       */
    Pfloat            end,             /* end angle         */
    Pclosure          type,            /* closure type      */
);

```

FILL ELLIPSE 3

```

void pfill_ellipse3 (
    const Ppoint3      *ctr_point,      /* centre point      */
    const Pvec3        *major_ref_vec,  /* major axis reference vector */
    const Pvec3        *minor_ref_vec,  /* minor axis reference vector */
);

```

FILL ELLIPSE

```

void pfill_ellipse (
    const Ppoint    *ctr_point,      /* centre point          */
    const Pvec      *major_ref_vec,  /* major axis reference vector */
    const Pvec      *minor_ref_vec   /* minor axis reference vector */
);

```

ELLIPTICAL ARC CLOSE 3

```

void pelliptical_arc_close3 (
    const Ppoint3    *ctr_point,      /* centre point          */
    const Pvec3      *major_ref_vec,  /* major axis reference vector */
    const Pvec3      *minor_ref_vec,  /* minor axis reference vector */
    Pfloat           start,           /* start angle           */
    Pfloat           end,             /* end angle             */
    Pclosure         type             /* closure type          */
);

```

ELLIPTICAL ARC CLOSE

```

void pelliptical_arc_close(
    const Ppoint    *ctr_point,      /* centre point          */
    const Pvec      *major_ref_vec,  /* major axis reference vector */
    const Pvec      *minor_ref_vec,  /* minor axis reference vector */
    Pfloat           start,           /* start angle           */
    Pfloat           end,             /* end angle             */
    Pclosure         type             /* closure type          */
);

```

13.3 Attribute specification functions

13.3.1 Bundled attribute selection

SET HIGHLIGHTING INDEX

```
void pset_highl_ind (  
    Pint          highl_ind          /* highlighting index      */  
);
```

13.3.2 Individually selected bundled attributes

SET LINETYPE ADAPTABILITY

```
void pset_linetype_adapt (  
    Plinetype_adapt    adaptability    /* linetype adaptability    */  
);
```

SET LINETYPE CONTINUITY

```
void pset_linetype_cont (  
    Plinetype_cont     continuity      /* linetype continuity      */  
);
```

SET LINETYPE OFFSET

```
void pset_linetype_offset (  
    Pfloat             offset          /* linetype offset          */  
);
```

SET LINECAP

```
void pset_linecap (  
    Plinecap           linecap         /* linecap                  */  
);
```

SET LINEJOIN

```
void pset_linejoin (
    Plinejoin          linejoin          /* linejoin          */
);
```

SET LINEMITRE LIMIT

```
void pset_linemitre_limit (
    Pfloat             limit              /* linemitre limit      */
);
```

SET EDGETYPE ADAPTABILITY

```
void pset_edgetype_adapt (
    Pedgetype_adapt    adaptability      /* edgetype adaptability */
);
```

SET EDGETYPE CONTINUITY

```
void pset_edgetype_cont (
    Pedgetype_cont     continuity        /* edgetype continuity  */
);
```

SET EDGETYPE OFFSET

```
void pset_edgetype_offset (
    Pfloat             offset            /* edgetype offset      */
);
```

SET EDGECAP

```
void pset_edgcap (
    Pedgecap          edgcap          /* edgcap*/
);
```

SET EDGEJOIN

```
void pset_edgejoin (
    Pedgejoin          edgejoin        /* edgejoin */
);
```

SET EDGEMITRE LIMIT

```
void pset_edgemitre_limit (
    Pfloat             limit            /* edgemitre limit */
);
```

SET HIGHLIGHTING METHOD

```
void pset_highl_method (
    const Phighl_method *method        /* highlighting method */
);
```

SET TRANSPARENCY

```
void pset_transparency (
    Pfloat             transparency      /* transparency */
);
```

SET BACK TRANSPARENCY

```
void pset_back_transparency (
    Pfloat    back_transparency    /* back transparency */
);
```

SET ALPHA SOURCE SELECTOR

```
void pset_alpha_src_sel (
    const Pint_list *alpha_src_sel    /* alpha source selector list */
);
```

SET ALPHA DATA SELECTION INDEX

```
void pset_alpha_data_sel_ind (
    Pint        alpha_data_sel_ind    /* alpha data selection index */
);
```

SET ACTIVE TEXTURES

```
void pset_active_textures (
    const Pint_list *active_textures    /* list of active textures */
);
```

SET BACK ACTIVE TEXTURES

```
void pset_back_active_textures (
    const Pint_list *back_active_textures /* list of active textures */
);
```

SET TEXTURE PERSPECTIVE CORRECTION

```
void pset_texture_perspect_corr (
    Pperspect_corr    perspect_corr    /* texture perspective correction */
);
```

SET TEXTURE SAMPLING FREQUENCY

```
void pset_texture_sampling_freq (
    Pint              sampling_freq      /* texture sampling frequency */
);
```

SET TEXTURE RESOURCE OPTIMIZATION HEURISTICS

```
void pset_texture_res_opt_heur (
    const Ptexture_res_opt_heur *heuristics /* heuristics */
);
```

13.3.3 Individual attributes

SET CONDITION FLAGS

```
void pset_cond_flags (
    const Pcond_flags *flags /* condition flag masks */
);
```

SET CONDITION FLAGS FROM TESTS

```
void pset_cond_flags_from_tests (
    const Pcond_test_list *tests /* list of condition flag tests*/
);
```

13.3.4 Workstation attribute table definitions

SET POLYLINE REPRESENTATION FULL

```
void pset_line_rep_full (
    Pint          ws_id,      /* workstation identifier */
    Pint          index,      /* polyline bundle index */
    const Pline_bundle_full *rep /* polyline representation full */
);
```

SET POLYLINE REPRESENTATION MASK

```
void pset_line_rep_mask (
    Pint          ws_id,      /* workstation identifier */
    Pint          index,      /* polyline bundle index */
    Ppolyline_mask mask,      /* polyline validity mask */
    const Pline_bundle_full rep /* polyline representation */
);
```

SET POLYMARKER REPRESENTATION MASK

```
void pset_marker_rep_mask (
    Pint          ws_id,      /* workstation identifier */
    Pint          index,      /* polymarker bundle index */
    Ppolymarker_mask mask,    /* polymarker validity mask */
    const Pmarker_bundle_plus rep /* polymarker representation */
);
```

SET TEXT REPRESENTATION MASK

```
void pset_text_rep_mask (
    Pint          ws_id,      /* workstation identifier */
    Pint          index,      /* text bundle index */
    Ptext_mask    mask,      /* text validity mask */
    const Ptext_bundle_plus rep /* text representation */
);
```

SET INTERIOR REPRESENTATION MASK

```

void pset_int_rep_mask (
    Pint          ws_id,    /* workstation identifier    */
    Pint          index,    /* interior bundle index    */
    Pinterior_mask mask,    /* interior validity mask    */
    const Pint_bundle_plus rep /* interior representation */
);

```

SET EDGE REPRESENTATION FULL

```

void pset_edge_rep_full (
    Pint          ws_id,    /* workstation identifier    */
    Pint          index,    /* edge bundle index        */
    const Pedge_bundle_full *rep /* edge representation full */
);

```

SET EDGE REPRESENTATION MASK

```

void pset_edge_rep_mask (
    Pint          ws_id,    /* workstation identifier    */
    Pint          index,    /* edge bundle index        */
    Pedge_mask    mask,    /* edge validity mask        */
    const Pedge_bundle_full *rep /* edge representation full */
);

```

SET EXTENDED PATTERN REPRESENTATION

```

void pset_ext_pat_rep (
    Pint          ws_id,    /* workstation identifier    */
    Pint          pat_ind,  /* pattern bundle index      */
    const Ppattern *pattern /* extended pattern representation */
);

```

SET PATTERN REPRESENTATION MASK

```

void pset_pat_rep_mask (
    Pint          ws_id,          /* workstation identifier */
    Pint          pat_ind,        /* pattern bundle index   */
    Ppattern_mask mask,          /* pattern validity mask   */
    const Ppat_rep *pat_bundle,   /* pattern representation  */
    const Ppat_rep_plus *pat_rep_plus, /* pattern representation plus */
    const Ppattern *pattern       /* ext. pattern representation */
);

```

NOTE — Only the parameters indicated by the mask need be provided. Other representation parameters may reference null structures or unused representation structures;

SET TEXTURE REPRESENTATION

```

void pset_texture_rep (
    Pint          ws_id,          /* workstation identifier */
    Pint          index,         /* texture index          */
    const Ptexture_rep *rep       /* texture representation */
);

```

SET TEXTURE REPRESENTATION MASK

```

void pset_texture_rep_mask (
    Pint          ws_id,          /* workstation identifier */
    Pint          index,         /* texture index          */
    Ptexture_mask mask,          /* texture validity mask   */
    const Ptexture_rep *rep       /* texture representation */
);

```

NOTE — Only those fields of the structures within the texture representation that are specified by the mask are referenced.

SET TEXTURE PARAMETRIZATION

```
void pset_texture_param (  
    Pint          ws_id, /* workstation identifier */  
    Pint          index, /* texture index */  
    const Ptexture_param *param /* texture parametrization */  
);
```

SET TEXTURE COMPOSITION

```
void pset_texture_composition (  
    Pint          ws_id, /* workstation identifier */  
    Pint          index, /* texture index */  
    const Ptexture_compos *compos /* texture composition */  
);
```

SET TEXTURE SAMPLING

```
void pset_texture_sampling (  
    Pint          ws_id, /* workstation identifier */  
    Pint          index, /* texture index */  
    const Ptexture_sampling *sampling /* texture sampling */  
);
```

SET TEXTURE BINDING

```
void pset_texture_binding (  
    Pint          ws_id, /* workstation identifier */  
    Pint          index, /* texture index */  
    const Ptexture_binding *binding /* texture binding */  
);
```

SET HIGHLIGHTING REPRESENTATION

```

void pset_highl_rep (
    Pint          ws_id,          /* workstation identifier */
    Pint          highl_ind,      /* highlighting bundle index */
    const Phighl_method *method  /* highlighting method */
);

```

SET TRANSPARENCY MODE

```

void pset_transparency_mode (
    Pint          ws_id,          /* workstation identifier */
    Pint          mode           /* transparency mode */
);

```

SET DEPTH CUE REPRESENTATION MASK

```

void pset_depth_cue_rep_mask (
    Pint          ws_id,          /* workstation identifier */
    Pint          index,         /* depth cue bundle index */
    Pdepth_cue_mask mask,       /* depth cue validity mask */
    const Pdepth_cue_rep *rep    /* depth cue representation */
);

```

SET TRANSPARENCY THRESHOLDS

```

void pset_transparency_thresholds (
    Pint          ws_id,          /* workstation identifier */
    const Pfloat_list *thresholds /* list of transparency thresholds */
);

```

SET REFLECTANCE REPRESENTATION MASK

```

void pset_refl_rep_mask (
    Pint          ws_id,      /* workstation identifier */
    Pint          index,      /* reflectance bundle index */
    Prefl_mask    mask,       /* reflectance validity mask */
    const Prefl_rep *rep,     /* reflectance representation */
);

```

13.3.5 Workstation attribute filter definition**SET APPLICATION FILTER**

```

void pset_appl_filter (
    Pint          ws_id,      /* workstation identifier */
    Pint          filter_id,   /* application filter identifier */
    const Pfilter *filter,    /* application filter */
);

```

13.3.6 Attribute utility functions**CREATE MIPMAP TEXTURE**

```

void pcreate_mipmap_texture (
    Pint          ws_id,      /* workstation identifier */
    Pint          src_image_res_id, /* source image resource id */
    Pint          mipmap_image_res_id, /* mipmap image resource id */
    Pint          max_levels, /* max mipmap levels */
    Pint          creation_heuristic /* mipmap creation heuristic */
);

```

DEFINE LINETYPE

```

void pdefine_linetype (
    Pint          linetype, /* linetype */
    Pfloat        repeat_length, /* repeat length */
    const Pfloat_list *segment_lengths /* segment length list */
);

```

DEFINE MARKER TYPE

```

void pdefine_marker_type (
    Pint          marker_type,      /* marker type          */
    const Pmarker_desc *marker      /* marker descriptor    */
);

```

13.4 Transformation and clipping functions**13.4.1 View construction functions****SET VIEW REFERENCE POINT 3**

```

void pset_view_ref_point3 (
    Pint          ws_id,            /* workstation id        */
    Pint          view_ind,         /* view index            */
    const Ppoint3 *view_ref_point   /* view reference point   */
);

```

SET VIEW REFERENCE POINT

```

void pset_view_ref_point (
    Pint          ws_id,            /* workstation id        */
    Pint          view_ind,         /* view index            */
    const Ppoint  *view_ref_point   /* view reference point   */
);

```

SET VIEW PLANE NORMAL

```

void pset_view_plane_norm (
    Pint          ws_id,            /* workstation id        */
    Pint          view_ind,         /* view index            */
    const Pvec3   *view_norm_vec    /* view normal vector     */
);

```

SET VIEW UP VECTOR 3

```

void pset_view_up_vec3 (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    const Pvec3   *view_up_vec   /* view up vector          */
);

```

SET VIEW UP VECTOR

```

void pset_view_up_vec (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    const Pvec    *view_up_vec   /* view up vector          */
);

```

SET VIEW WINDOW LIMITS

```

void pset_view_win_limits (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    const Plimit  *win           /* view window limits      */
);

```

SET PROJECTION VIEWPORT 3

```

void pset_proj_vp3 (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    const Plimit3 *proj_vp       /* projection viewport limits */
);

```

SET PROJECTION VIEWPORT

```

void pset_proj_vp (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    const Plimit  *proj_vp       /* projection viewport limits */
);

```

SET PROJECTION TYPE

```

void pset_proj_type (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pproj_type    proj_type      /* projection type          */
);

```

SET PROJECTION REFERENCE POINT

```

void pset_proj_ref_point (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    const Ppoint3 *proj_ref_point /* projection reference point */
);

```

SET VIEW PLANE DISTANCE

```

void pset_view_plane_dist (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pfloat        view_plane     /* view plane distance     */
);

```

SET FRONT PLANE DISTANCE

```

void pset_front_plane_dist (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pfloat        front_plane     /* front plane distance     */
);

```

SET BACK PLANE DISTANCE

```

void pset_back_plane_dist (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pfloat        back_plane     /* back plane distance     */
);

```

SET X-Y CLIPPING INDICATOR

```

void pset_xy_clip_indicator (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pclip_ind     xy_clip        /* xy clipping indicator     */
);

```

SET FRONT CLIPPING INDICATOR

```

void pset_front_clip_indicator (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pclip_ind     front_clip     /* front clipping indicator  */
);

```

SET BACK CLIPPING INDICATOR

```

void pset_back_clip_indicator (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pclip_ind     back_clip       /* back clipping indicator  */
);

```

UPDATE VIEW REPRESENTATION

```

void pupd_view_rep (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          view_upd_method /* view update method      */
);

```

13.4.2 Workstation utility functions**MAP DEVICE COORDINATES TO WINDOW SYSTEM COORDINATES**

```

void pmap_dc_to_wsc (
    Pint          ws_id,          /* workstation id          */
    const Ppoint_list *dc,       /* device coordinate points */
    Ppoint_list   *wsc           /* OUT window system coordinate points */
);

```

MAP WINDOW SYSTEM COORDINATES TO DEVICE COORDINATES

```

void pmap_wsc_to_dc (
    Pint          ws_id,          /* workstation id          */
    const Ppoint_list *wsc,       /* window system coordinate points */
    Ppoint_list   *dc            /* OUT device coordinate points */
);

```

MAP DEVICE COORDINATES TO WORLD COORDINATES

```
void pmap_dc_to_wc (
    Pint          ws_id,      /* workstation id          */
    Pint          view_ind,   /* view index              */
    const Ppoint_list *dc,    /* device coordinate points */
    Ppoint_list   *wc         /* OUT world coordinate points */
);
```

13.5 Structure content functions

OPEN DIRECT INTERPRETATION STRUCTURE

```
void popen_di_struct (
    void
);
```

CLOSE DIRECT INTERPRETATION STRUCTURE

```
void pclose_di_struct (
    void
);
```

INSTANCE STRUCTURE

```
void pinst_struct (
    Pint          struct_id      /* structure identifier    */
);
```

CONDITIONAL EXECUTE STRUCTURE

```

void pcond_exec_struct (
    Pint          struct_id,      /* structure identifier */
    const Ptest   *test           /* condition test       */
);

```

CONDITIONAL INSTANCE STRUCTURE

```

void pcond_inst_struct (
    Pint          struct_id,      /* structure identifier */
    const Ptest   *test           /* condition test       */
);

```

CONDITIONAL RETURN

```

void pcond_return (
    const Ptest   *test           /* condition test       */
);

```

CONDITIONAL SKIP ELEMENTS

```

void pcond_skip_elements (
    Pint          skip_count,      /* number of elements to skip */
    const Ptest   *test           /* condition test             */
);

```

CONDITIONAL SKIP TO LABEL

```

void pcond_skip_to_label (
    Pint          label,           /* label to which to skip */
    const Ptest   *test           /* condition test         */
);

```

PUSH STATE

```

void ppush_st (
    Pint          struct_id,      /* structure identifier */
    Pref_type     ref_type       /* reference type       */
);

```

POP STATE

```

void ppop_st (
    void
);

```

COPY ELEMENT FROM STRUCTURE

```

void pcopy_elem_struct (
    Pint          struct_id,      /* structure identifier */
    Pint          elem_num       /* element number       */
);

```

COPY ELEMENT RANGE FROM STRUCTURE

```

void pcopy_elem_range_struct (
    Pint          struct_id,      /* structure identifier */
    Pint          elem_ptr_1_value, /* element position 1   */
    Pint          elem_ptr_2_value, /* element position 2   */
);

```

COPY ELEMENTS BETWEEN LABELS FROM STRUCTURE

```

void pcopy_elems_between_labels_struct (
    Pint          struct_id,      /* structure identifier */
    Pint          label1_id,      /* label identifier 1    */
    Pint          label2_id       /* label identifier 2    */
);

```

MOVE ELEMENT FROM STRUCTURE

```

void pmove_elem_struct (
    Pint          struct_id,          /* structure identifier */
    Pint          elem_num            /* element number       */
);

```

MOVE ELEMENT RANGE FROM STRUCTURE

```

void pmove_elem_range_struct (
    Pint          struct_id,          /* structure identifier */
    Pint          elem_ptr_1_value,   /* element position 1   */
    Pint          elem_ptr_2_value    /* element position 2*/
);

```

MOVE ELEMENTS BETWEEN LABELS FROM STRUCTURE

```

void pmove_elems_between_labels_struct (
    Pint          struct_id,          /* structure identifier */
    Pint          label1_id,          /* label identifier 1    */
    Pint          label2_id           /* label identifier 2    */
);

```

SET WATCH ON ELEMENT RANGE

```

void pset_watch_on_elem_range (
    Pint          struct_id,          /* watched structure identifier*/
    Pint          elem_pos1,          /* element position 1        */
    Pint          elem_pos2           /* element position 2        */
);

```

END WATCH ON ELEMENT RANGE

```

void pend_watch_on_elem_range (
    void
);

```

13.6 Structure display functions

POST STRUCTURE TO GROUP

```
void ppost_struct_to_grp (
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* posting group identifier */
    Pint          struct_id,      /* structure identifier */
    Pfloat        pri             /* priority */
);
```

UNPOST STRUCTURES FROM GROUPS

```
void punpost_structs_from_grps (
    Pint          ws_id,          /* workstation identifier */
    Pint_list     grp_ids,        /* posting group identifiers */
    Pint_list     struct_ids      /* structure identifiers */
);
```

UNPOST ALL STRUCTURES FROM GROUP

```
void punpost_all_structs_from_grp (
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id         /* posting group identifier */
);
```

POST DIRECT INTERPRETATION STRUCTURE

```
void ppost_di_struct (
    Pint          ws_id,          /* workstation identifier */
    Pint          struct_id       /* structure identifier */
);
```

POST DIRECT INTERPRETATION STRUCTURE TO POSTING GROUP

```

void ppost_di_struct_to_grp (
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* group identifier       */
    Pint          struct_id       /* structure identifier    */
);

```

UNPOST DIRECT INTERPRETATION STRUCTURE

```

void unpunpost_di_struct (
    Pint          ws_id          /* workstation identifier */
);

```

RENEW DIRECT INTERPRETATION STATE

```

void prenew_di_state (
    Pint          ws_id,          /* workstation identifier */
    Pint          struct_id,      /* structure identifier    */
    Ptrav_type    trav_type      /* traversal type          */
);

```

SET DIRECT INTERPRETATION MODE

```

void pset_di_mode (
    Pint          ws_id,          /* workstation identifier */
    Ptrav_type    trav_type,     /* traversal type          */
    Pdi_mode      mode           /* direct interpretation mode */
);

```

MARK MULTI-PASS START

```

void pmark_multi_pass_start (
    Pint          ws_id          /* workstation identifier */
);

```

MARK MULTI-PASS COMPLETION

```
void pmark_multi_pass_compl (
    Pint          ws_id          /* workstation identifier*/
);
```

MARK PASS START

```
void pmark_pass_start (
    Pint          ws_id          /* workstation identifier */
);
```

MARK PASS COMPLETION

```
void pmark_pass_compl (
    Pint          ws_id          /* workstation identifier */
);
```

RETRIEVE NUMBER OF PASSES REQUIRED

```
void pret_num_passes_req (
    Pint          ws_id,          /* workstation identifier */
    Ptrav_type    trav_type,      /* traversal type */
    Pint          *num_passes_req, /* OUT picture passes required */
    Pboolean      *delineation_req /* OUT pass delineations required */
);
```

13.7 Input functions

13.7.1 Pick support functions

SET SET PICK FILTER

```
void pset_set_pick_filter (
    Pint          ws_id,          /* workstation identifier */
    Pint          dev,            /* set dev. number       */
    const Pfilter *filter        /* echo switch           */
);
```

SET COMPOSITE PICK FILTER

```
void pset_composite_pick_filter (
    Pint          ws_id,          /* workstation identifier */
    Pint          dev,            /* composite dev. number  */
    const Pfilter *filter        /* echo switch           */
);
```

SET DIRECT INTERPRETATION PICK FILTER

```
void pset_di_pick_filter (
    Pint          ws_id,          /* workstation identifier */
    const Pfilter *filter        /* pick filter           */
);
```

SET DIRECT INTERPRETATION PICK CORRELATION POINT 3

```
void pset_di_pick_corr_point3 (
    Pint          ws_id,          /* workstation identifier */
    const Ppoint3 *point         /* pick correlation point */
);
```

SET DIRECT INTERPRETATION PICK CORRELATION POINT

```

void pset_di_pick_corr_point (
    Pint          ws_id,          /* workstation identifier */
    const Ppoint  *point          /* pick correlation point */
);

```

SET PICK MAPPING DATA

```

void pset_pick_mapping_data (
    Pint          ws_id,          /* workstation identifier */
    Pint          pick_type,      /* pick type */
    Ppath_order   order,         /* pick path order */
    const Pfilter  filter,       /* pick filter */
    Pecho_switch  echo,         /* echo switch */
    Pint          pet,           /* prompt and echo type */
    const Pdi_pick_data *pick_data /* pick data record */
);

```

MAP DEVICE COORDINATE POINT TO PICK PATHS

```

void pmap_dc_point_to_pick_paths (
    Pint          ws_id,          /* workstation identifier */
    const Ppoint  *point,        /* device coordinate point */
    Pint          max_paths,     /* max paths to return */
    Pint          depth,        /* pick path depth */
    const Ppick_path *start_path, /* starting pick path */
    Pstore        store,        /* handle to Store object */
    Pint          *err_ind,      /* OUT error indicator */
    Pin_status    *in_status,    /* OUT pick status */
    Ppick_path_list **pick      /* OUT list of pick paths */
);

```

NOTE — The memory referenced by *pick is managed by store.

13.7.2 Logical input device definition functions

DEFINE LOCATOR

```
void pdefine_locator (
    Pint          ws_id,          /* workstation id          */
    Pint          dev,            /* locator dev. number     */
    Pint          measure_proc_id, /* locator measure proc.   */
    const Ptrig_process_list *triggers, /* list of trigger proc. */
    const Pecho_process_list *echos, /* list of echo proc.     */
    const Pack_process_list *acknowledgements /* list of ack. proc. */
);
```

DEFINE STROKE

```
void pdefine_stroke (
    Pint          ws_id,          /* workstation id          */
    Pint          dev,            /* stroke dev. number     */
    Pint          measure_proc_id, /* stroke measure proc.   */
    const Ptrig_process_list *triggers, /* list of trigger proc. */
    const Pecho_process_list *echos, /* list of echo proc.     */
    const Pack_process_list *acknowledgements /* list of ack. proc. */
);
```

DEFINE VALUATOR

```
void pdefine_valuator (
    Pint          ws_id,          /* workstation id.         */
    Pint          dev,            /* valuator dev. number   */
    Pint          measure_proc_id, /* valuator measure proc. */
    const Ptrig_process_list *triggers, /* list of trigger proc. */
    const Pecho_process_list *echos, /* list of echo proc.     */
    const Pack_process_list *acknowledgements /* list of ack. proc. */
);
```

DEFINE CHOICE

```

void pdefine_choice (
    Pint          ws_id,          /* workstation id.      */
    Pint          dev,            /* choice dev. number   */
    Pint          measure_proc_id, /* choice measure proc. */
    const Ptrig_process_list *triggers, /* list of trigger proc.*/
    const Pecho_process_list *echos,    /* list of echo proc.   */
    const Pack_process_list *acknowledgements /* list of ack. proc.*/
);

```

DEFINE PICK

```

void pdefine_pick (
    Pint          ws_id,          /* workstation id.      */
    Pint          dev,            /* pick dev. number     */
    Pint          measure_proc_id, /* pick measure proc.   */
    const Ptrig_process_list *triggers, /* list of trigger proc.*/
    const Pecho_process_list *echos,    /* list of echo proc.   */
    const Pack_process_list *acknowledgements /* list of ack. proc.   */
);

```

DEFINE STRING

```

void pdefine_string (
    Pint          ws_id,          /* workstation id.      */
    Pint          dev,            /* string dev. number   */
    Pint          measure_proc_id, /* string measure proc. */
    const Ptrig_process_list *triggers, /* list of trigger proc.*/
    const Pecho_process_list *echos,    /* list of echo proc.   */
    const Pack_process_list *acknowledgements /* list of ack. proc.   */
);

```

CREATE SET MEASURE

```

void pcreate_set_measure (
    Pint          ws_id,          /* workstation identifier */
    const Pmeas_process *base_measure_proc, /* measure process for set */
    Pint          max_measures,    /* maximum measures in set */
    Pint          *measure_proc_id /* OUT set measure process */
                                /* identifier */
);

```

DEFINE SET

```

void pdefine_set (
    Pint          ws_id,          /* workstation id. */
    Pint          dev,           /* set dev. number */
    Pint          measure_proc_id, /* set measure proc. */
    const Ptrig_process_list *triggers, /* list of trigger proc. */
    const Pecho_process_list *echos,    /* list of echo proc. */
    const Pack_process_list *acknowledgements /* list of ack. proc. */
);

```

CREATE COMPOSITE MEASURE

```

void pcreate_composite_measure (
    Pint          ws_id,          /* workstation identifier */
    const Pmeas_process_list *measure_procs, /* list of measure proc. */
    Pint          *measure_proc_id /* OUT composite measure */
                                /* process identifier */
);

```

DEFINE COMPOSITE

```
void pdefine_composite (  
    Pint          ws_id,          /* workstation id.      */  
    Pint          dev,            /* composite dev. number*/  
    Pint          measure_proc_id, /* composite meas. proc.*/  
    const Ptrig_process_list *triggers, /* list of trigger proc.*/  
    const Pecho_process_list *echos,    /* list of echo proc.   */  
    const Pack_process_list *acknowledgements /* list of ack. proc.  */  
);
```

UNDEFINE LOCATOR

```
void pundefine_locator (  
    Pint          ws_id,          /* workstation identifier */  
    Pint          dev            /* locator dev. number    */  
);
```

UNDEFINE STROKE

```
void pundefine_stroke (  
    Pint          ws_id,          /* workstation identifier */  
    Pint          dev            /* stroke dev. number     */  
);
```

UNDEFINE VALUATOR

```
void pundefine_valuator (  
    Pint          ws_id,          /* workstation identifier */  
    Pint          dev            /* locator dev. number    */  
);
```

UNDEFINE CHOICE

```

void pundefine_choice (
    Pint          ws_id,          /* workstation identifier */
    Pint          dev             /* choice dev. number */
);

```

UNDEFINE PICK

```

void pundefine_pick (
    Pint          ws_id,          /* workstation identifier */
    Pint          dev             /* pick dev. number */
);

```

UNDEFINE STRING

```

void pundefine_string (
    Pint          ws_id,          /* workstation identifier */
    Pint          dev             /* string dev. number */
);

```

DESTROY SET MEASURE

```

void pdestroy_set_measure (
    Pint          ws_id,          /* workstation identifier */
    Pint          measure_proc_id /* set measure process identifier */
);

```

UNDEFINE SET

```

void pundefine_set (
    Pint          ws_id,          /* workstation identifier */
    Pint          dev             /* set dev. number */
);

```

DESTROY COMPOSITE MEASURE

```

void pdestroy_composite_measure (
    Pint          ws_id,          /* workstation identifier */
    Pint          measure_proc_id /* composite measure process id. */
);

```

UNDEFINE COMPOSITE

```

void pundefine_composite (
    Pint          ws_id,          /* workstation identifier */
    Pint          dev            /* composite dev. number */
);

```

13.7.3 Initialization of input devices

INITIALIZE SET 3

```

void pinit_set3 (
    Pint          ws_id,          /* workstation identifier */
    Pint          dev,           /* set dev. number */
    const Pset_measure *init_measure, /* initial measure */
    Pint          pet,           /* prompt and echo type */
    const Plimit3 *echo_volume, /* echo volume boundaries */
    const Pset_data *record      /* input data record */
);

```

INITIALIZE SET

```

void pinit_set (
    Pint          ws_id,          /* workstation identifier */
    Pint          dev,           /* set dev. number */
    const Pset_measure *init_measure, /* initial measure */
    Pint          pet,           /* prompt and echo type */
    const Plimit *echo_area,     /* echo area boundaries */
    const Pset_data *record      /* input data record */
);

```

INITIALIZE COMPOSITE 3

```

void pinit_composite3 (
    Pint          ws_id,          /* workstation identifier */
    Pint          dev,            /* composite dev. number */
    const Pcomposite_measure *init_measure, /* initial measure */
    Pint          pet,            /* prompt and echo type */
    const Plimit3 *echo_volume,   /* echo volume boundaries */
    const Pcomposite_data *record /* input data record */
);

```

INITIALIZE COMPOSITE

```

void pinit_composite (
    Pint          ws_id,          /* workstation identifier */
    Pint          dev,            /* composite dev. number */
    const Pcomposite_measure *init_measure, /* initial measure */
    Pint          pet,            /* prompt and echo type */
    const Plimit    *echo_area,   /* echo area boundaries */
    const Pcomposite_data *record /* input data record */
);

```

13.7.4 Setting the mode of input devices**SET SET MODE**

```

void pset_set_mode (
    Pint          ws_id,          /* workstation identifier */
    Pint          dev,            /* set dev. number */
    Pop_mode      mode,          /* operating mode */
    Pecho_switch  echo           /* echo switch */
);

```

SET COMPOSITE MODE

```

void pset_composite_mode (
    Pint          ws_id,      /* workstation identifier */
    Pint          dev,        /* composite dev. number */
    Pop_mode      mode,       /* operating mode */
    Pecho_switch  echo,       /* echo switch */
);

```

13.7.5 Request input functions**REQUEST SET 3**

```

void preq_set3 (
    Pint          ws_id,      /* workstation identifier */
    Pint          dev,        /* set dev. number */
    Pstore        store,      /* store for measure data */
    Pna_in_status *status,    /* OUT non-atomic input status */
    Pset_measure  **measure   /* OUT pointer to measure data */
);

```

NOTE — The memory referenced by *measure is managed by store.

REQUEST SET

```

void preq_set (
    Pint          ws_id,      /* workstation identifier */
    Pint          dev,        /* set dev. number */
    Pstore        store,      /* store for measure data */
    Pna_in_status *status,    /* OUT non-atomic input status */
    Pset_measure  **measure   /* OUT pointer to measure data */
);

```

NOTE — The memory referenced by *measure is managed by store.

REQUEST COMPOSITE 3

```

void preq_composite3 (
    Pint          ws_id,      /* workstation identifier */
    Pint          dev,        /* composite dev. number */
    Pstore        store,      /* store for measure data */
    Pna_in_status *status,    /* OUT non-atomic input status */
    Pcomposite_measure **measure /* OUT pointer to measure data */
);

```

NOTE — The memory referenced by *measure is managed by store.

REQUEST COMPOSITE

```

void preq_composite (
    Pint          ws_id,      /* workstation identifier */
    Pint          dev,        /* composite dev. number */
    Pstore        store,      /* store for measure data */
    Pna_in_status *status,    /* OUT non-atomic input status */
    Pcomposite_measure **measure /* OUT pointer to measure data */
);

```

NOTE — The memory referenced by *measure is managed by store.

13.7.6 Sample input functions**SAMPLE SET 3**

```

void psample_set3 (
    Pint          ws_id,      /* workstation identifier */
    Pint          dev,        /* set dev. number */
    Pstore        store,      /* store for measure data */
    Pna_in_status *status,    /* OUT non-atomic input status */
    Pset_measure  **measure  /* OUT pointer to measure data */
);

```

NOTE — The memory referenced by *measure is managed by store.

SAMPLE SET

```

void psample_set (
    Pint          ws_id,      /* workstation identifier */
    Pint          dev,        /* set dev. number */
    Pstore        store,      /* store for measure data */
    Pna_in_status *status,    /* OUT non-atomic input status */
    Pset_measure  **measure   /* OUT pointer to measure data */
);

```

NOTE — The memory referenced by *measure is managed by store.

SAMPLE COMPOSITE 3

```

void psample_composite3 (
    Pint          ws_id,      /* workstation identifier */
    Pint          dev,        /* composite dev. number */
    Pstore        store,      /* store for measure data */
    Pna_in_status *status,    /* OUT non-atomic input status */
    Pcomposite_measure **measure /* OUT pointer to measure data */
);

```

NOTE — The memory referenced by *measure is managed by store.

SAMPLE COMPOSITE

```

void psample_composite (
    Pint          ws_id,      /* workstation identifier */
    Pint          dev,        /* composite dev. number */
    Pstore        store,      /* store for measure data */
    Pna_in_status *status,    /* OUT non-atomic input status */
    Pcomposite_measure **measure /* OUT pointer to measure data */
);

```

NOTE — The memory referenced by *measure is managed by store..

13.7.7 Event input functions

GET SET 3

```
void pget_set3 (
    Pstore          store,      /* store for measure data */
    Pna_in_status   *status,    /* OUT non-atomic input status */
    Pset_measure    **measure   /* OUT pointer to measure data */
);
```

NOTE — The memory referenced by *measure is managed by store.

GET SET

```
void pget_set (
    Pstore          store,      /* store for measure data */
    Pna_in_status   *status,    /* OUT non-atomic input status */
    Pset_measure    **measure   /* OUT pointer to measure data */
);
```

NOTE — The memory referenced by *measure is managed by store.

GET COMPOSITE 3

```
void pget_composite3 (
    Pstore          store,      /* store for measure data */
    Pna_in_status   *status,    /* OUT non-atomic input status */
    Pcomposite_measure **measure /* OUT pointer to measure data */
);
```

NOTE — The memory referenced by *measure is managed by store

GET COMPOSITE

```

void pget_composite (
    Pstore          store,          /* store for measure data */
    Pna_in_status   *status,        /* OUT non-atomic input status */
    Pcomposite_measure **measure    /* OUT pointer to measure data */
);

```

NOTE — The memory referenced by *measure is managed by store.

13.7.8 Local input operation functions**ATTACH LOGICAL INPUT DEVICE TO VIEW**

```

void pattach_lid_to_view (
    Pint          lid_ws_id,          /* LID workstation id */
    Pin_class     dev_class,          /* LID class */
    Pint          dev,                /* LID number */
    Pint          view_ws_id,         /* view workstation id */
    Pint          view_ind,           /* view index */
    Pint          view_action_type,   /* action type */
    Pint          transfer_type,       /* measure transfer type */
    Pint          view_upd_method     /* view update method */
);

```

DETACH LOGICAL INPUT DEVICE FROM VIEW

```

void pdetach_lid_from_view (
    Pint          lid_ws_id,          /* LID workstation id */
    Pin_class     dev_class,          /* LID class */
    Pint          dev,                /* LID number */
    Pint          view_ws_id,         /* view workstation id */
    Pint          view_ind,           /* view index */
    Pint          view_action_type,   /* view action type */
    Pint          view_upd_method     /* view update method */
);

```

13.7.9 Local lighting functions

ATTACH LOGICAL INPUT DEVICE TO LIGHT SOURCE

```
void pattach_lid_to_light_src (
    Pint          lid_ws_id,          /* LID workstation id          */
    Pin_class     dev_class,          /* LID class                   */
    Pint          dev,                /* LID number                  */
    Pint          light_ws_id,        /* light ws id                 */
    Pint          light_src_ind,      /* light source index          */
    Pint          action,             /* light action type           */
    Pint          transfer_type       /* measure transfer type       */
);
```

DETACH LOGICAL INPUT DEVICE FROM LIGHT SOURCE

```
void pdetach_lid_from_light_src (
    Pint          LID_ws_id,          /* LID workstation id          */
    Pin_class     dev_class,          /* LID class                   */
    Pint          in_num,             /* LID number                  */
    Pint          light_ws_id,        /* light ws id                 */
    Pint          light_src_ind,      /* light source index          */
    Pint          action              /* light action type           */
);
```

13.7.10 Direct interpretation picking functions

INITIALIZE DIRECT INTERPRETATION PICK 3

```
void pinit_di_pick3 (
    Pint          ws_id,              /* workstation identifier      */
    Pint          pick_type,          /* pick type                   */
    Pint          max_sets,           /* max. pick sets to return   */
    Pecho_switch  echo_switch,       /* echo switch                 */
    Pint          pet,               /* prompt and echo type       */
    const Plimit3 *echo_vol,         /* echo volume                 */
    const Pdi_pick_data3 *pick_data, /* pick data record           */
    Ppath_order   order              /* pick path order            */
);
```

INITIALIZE DIRECT INTERPRETATION PICK

```

void pinit_di_pick (
    Pint          ws_id,          /* workstation identifier */
    Pint          pick_type,      /* pick type */
    Pint          max_sets,       /* max. pick sets to return */
    Pecho_switch  echo_switch,    /* echo switch */
    Pint          pet,            /* prompt and echo type */
    const Plimit  *echo_area,     /* echo area */
    const Pdi_pick_data *pick_data, /* pick data record */
    Ppath_order   order          /* pick path order */
);

```

ENABLE DIRECT INTERPRETATION PICK

```

void penable_di_pick (
    Pint          ws_id,          /* workstation identifier */
    Pint          struct_id       /* structure identifier */
);

```

DISABLE DIRECT INTERPRETATION PICK

```

void pdisable_di_pick (
    Pint          ws_id          /* workstation identifier */
);

```

TRANSFER DIRECT INTERPRETATION PICK SET

```

void ptrans_di_pick_set (
    Pint          ws_id,          /* workstation identifier */
    Pstore        store,         /* handle to Store object */
    Pin_status    *in_status,    /* OUT pick status */
    Ppick_path_list **pick       /* OUT direct interpretation
                                /* pick sets
);

```

NOTE — The memory referenced by *pick is managed by store.

13.8 Inquiry functions

13.8.1 Inquiry functions for PHIGS description table

INQUIRE LINETYPE DEFINITION FACILITIES

```
void pinq_linetype_def_facs (
    Pstore          store,          /* handle to store object */
    Pint            *err_ind,       /* OUT error indicator */
    Plinetype_def_facs **facs      /* OUT linetype definition
                                   /* facilities */
);
```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE PREDEFINED LINETYPE DEFINITION

```
void pinq_pred_linetype_def (
    Pint            linetype,       /* linetype */
    Pint            num_elems_appl_list, /* # elems in appl list */
    Pint            starting_ind,     /* starting element to return */
    Pint            *err_ind,       /* OUT error indicator */
    Pfloat          *repeat_length,  /* OUT dash cycle repeat length
                                   */
    Pfloat_list     *segment_lengths, /* OUT list of segment lengths */
    Pint            *num_elems_impl_list /* OUT # elems in impl list */
);
```

INQUIRE MARKER TYPE DEFINITION FACILITIES

```
void pinq_marker_type_def_facs (
    Pstore          store,          /* handle to store object */
    Pint            *err_ind,       /* OUT error indicator */
    Pmarker_type_def_facs **facs    /* OUT marker type definition
                                   /* facilities */
);
```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE PREDEFINED MARKER TYPE DEFINITION

```

void pinq_pred_marker_type_def (
    Pint          marker_type,      /* marker type          */
    Pstore        store,            /* handle to store object */
    Pint          *err_ind,         /* OUT error indicator   */
    Pmarker_desc  **marker          /* OUT predef. marker descriptors */
);

```

NOTE — The memory referenced by *marker is managed by store..

13.8.2 Inquiry functions for PHIGS state list**INQUIRE SET OF WORKSTATIONS TO WHICH DIRECT INTERPRETATION STRUCTURE POSTED**

```

void pinq_wss_di_struct_posted (
    Pint          num_elems_appl_list, /* # elems in appl. list */
    Pint          starting_ind,       /* starting element to return */
    Pint          *err_ind,           /* OUT error indicator     */
    Pint_list     *ws_id,             /* OUT list of ws identifiers */
    Pint          *num_elems_impl_list /* OUT # elems in impl list */
);

```

INQUIRE WATCH ON ELEMENT RANGE

```

void pinq_watch_elem_range (
    Pint          *err_ind,           /* OUT error indicator     */
    Poff_on       *watch_enable_flag, /* OUT watch enable flag   */
    Pint          *struct_id,         /* OUT current watched structure */
    Pint          *elem_pos1,         /* OUT element position 1   */
    Pint          *elem_pos2          /* OUT element position 2   */
);

```

INQUIRE WATCH RANGE STATE

```

void pinq_watch_range_st (
    Pint      *err_ind,          /* OUT error indicator          */
    Poff_on   *primitive_erase_req, /* OUT primitive erasures required */
    Poff_on   *primitive_redraw_req /* OUT primitive redraws required */
);

```

INQUIRE NUMBER OF DEFINED LINETYPES

```

void pinq_num_def_linetypes (
    Pint *err_ind,          /* OUT error indicator          */
    Pint *num_defined      /* OUT number defined linetypes */
);

```

INQUIRE NUMBER OF DEFINED MARKER TYPES

```

void pinq_num_def_marker_types (
    Pint *err_ind,          /* OUT error indicator          */
    Pint *num_defined      /* OUT number defined marker types */
);

```

INQUIRE LINETYPE DEFINITION

```

void pinq_linetype_def (
    Pint      linetype,          /* linetype                      */
    Pint      num_elems_appl_list, /* # elems in appl list          */
    Pint      starting_ind,      /* starting element to return    */
    Pint      *err_ind,          /* OUT error indicator           */
    Pfloat     *repeat_length,   /* OUT dash cycle repeat length */
    Pfloat_list *segment_lengths, /* OUT list of segment lengths  */
    Pint      *num_elems_impl_list /* OUT # elems in impl list     */
);

```

INQUIRE MARKER TYPE DEFINITION

```

void pinq_marker_type_def (
    Pint      marker_type,      /* marker type          */
    Pstore    store,           /* handle to store object */
    Pint      *err_ind,         /* OUT error indicator    */
    Pmarker_desc **marker      /* OUT list of marker descriptors */
);

```

NOTE — The memory referenced by *marker is managed by store.

13.8.3 Inquiry functions for workstation state list**INQUIRE LIST OF POSTING GROUPS**

```

void pinq_list_post_grps (
    Pint      ws_id,           /* workstation identifier */
    Pint      num_elems_appl_list, /* # elems in appl. list */
    Pint      starting_ind,      /* starting elem to return */
    Pint      *err_ind,         /* OUT error indicator    */
    Pint_list *grp_ids,         /* OUT list of posting groups */
    Pint      *num_elems_impl_list /* OUT # elems in impl. list */
);

```

INQUIRE ASSOCIATED IMAGE RESOURCES

```

void pinq_assoc_image_res (
    Pint      ws_id,           /* workstation identifier */
    Pint      num_elems_appl_list, /* # elems in appl list */
    Pint      starting_ind,      /* start index            */
    Pint      *err_ind,         /* OUT error indicator    */
    Pint_list **image_res_ids,   /* OUT list of image resource */
                                /* identifiers             */
    Pint      *num_elems_impl_list /* OUT # elems in impl list */
);

```

INQUIRE DEVICE COORDINATE CLIP REGIONS 3

```

void pinq_dc_clip_regions3 (
    Pint          ws_id,          /* workstation identifier */
    Pstore        store,          /* handle to Store object */
    Pint          *err_ind,       /* OUT error indicator */
    Plimit3_list  **limit_list    /* OUT list of clip regions */
);

```

NOTE — The memory referenced by *limit_list is managed by store.

INQUIRE DEVICE COORDINATE CLIP REGIONS

```

void pinq_dc_clip_regions (
    Pint          ws_id,          /* workstation identifier */
    Pstore        store,          /* handle to Store object */
    Pint          *err_ind,       /* OUT error indicator */
    Plimit_list   **limit_list    /* OUT list of clip regions */
);

```

NOTE — The memory referenced by *limit_list is managed by store.

INQUIRE TARGET MANIPULATION MODE

```

void pinq_targ_manip_mode (
    Pint          ws_id,          /* workstation identifier */
    Pint          *err_ind,       /* OUT error indicator */
    Pint          *targ_manip_mode /* OUT target manipulation mode */
);

```

INQUIRE TARGET DISPOSITION

```

void pinq_targ_dispos (
    Pint          ws_id,          /* workstation identifier */
    Pstore        store,          /* handle to Store object */
    Pint          *err_ind,       /* OUT error indicator */
    Ptarg_op_list **targ_ops      /* OUT target operations list */
);

```

NOTE — The memory referenced by *targ_ops is managed by store.

INQUIRE DISPLAY TARGET

```

void pinq_disp_targ (
    Pint          ws_id,          /* workstation identifier */
    Pint          *err_ind,       /* OUT error indicator */
    Pint          *offset         /* OUT offset from base target */
);

```

INQUIRE RENDERING TARGET

```

void pinq_rend_targ (
    Pint          ws_id,          /* workstation identifier */
    Pint          *err_ind,       /* OUT error indicator */
    Pint          *offset         /* OUT offset from base target */
);

```

INQUIRE LIST OF HIGHLIGHTING INDICES

```

void pinq_list_highl_inds (
    Pint          ws_id,          /* workstation identifier */
    Pint          num_elems_appl_list, /* # elems in appl list */
    Pint          starting_ind,      /* starting element to return */
    Pint          *err_ind,         /* OUT error indicator */
    Pint_list     *highl_inds,      /* OUT list of highl indices */
    Pint          *num_elems_impl_list /* OUT # elems in impl list */
);

```

INQUIRE LIST OF DEFINED APPLICATION FILTERS

```

void pinq_list_def_appl_filters (
    Pint          ws_id,          /* workstation id */
    Pint          num_elems_appl_list, /* num elems in appl list */
    Pint          start_ind,        /* start elem index */
    Pint          *err_ind,         /* OUT error indicator */
    Pint_list     *filter_ids,      /* OUT list of appl. filters */
    Pint          *num_elems_impl_list /* OUT num elems in impl list */
);

```

INQUIRE LIST OF TEXTURE INDICES

```

void pinq_list_texture_inds (
    Pint          ws_id,          /* workstation id          */
    Pint          num_elems_appl_list, /* num elems in appl list  */
    Pint          start_ind,       /* start elem index        */
    Pint          *err_ind,        /* OUT error indicator      */
    Pint_list     *indices,        /* OUT list of defined texture */
                                /* indices                  */
    Pint          *num_elems_impl_list /* OUT num elems in impl list */
);

```

INQUIRE TRANSPARENCY MODE

```

void pinq_transparency_mode (
    Pint          ws_id,          /* workstation id          */
    Pint          *err_ind,       /* OUT error indicator      */
    Pint          *mode           /* OUT transparency mode    */
);

```

INQUIRE TRANSPARENCY THRESHOLDS

```

void pinq_transparency_thresholds (
    Pint          ws_id,          /* workstation id          */
    Pint          num_elems_appl_list, /* num elems in appl list  */
    Pint          start_ind,       /* start elem index        */
    Pint          *err_ind,        /* OUT error indicator      */
    Pfloat_list   *thresholds,     /* OUT list of thresholds   */
    Pint          *num_elems_impl_list /* OUT num elems in impl list */
);

```

INQUIRE DIRECT INTERPRETATION PICK CORRELATION POINT 3

```

void pinq_di_pick_corr_point3 (
    Pint          ws_id,          /* workstation identifier    */
    Pint          *err_ind,       /* OUT error indicator      */
    Ppoint3       *point         /* OUT pick correlation point */
);

```

INQUIRE DIRECT INTERPRETATION PICK CORRELATION POINT

```

void pinq_di_pick_corr_point (
    Pint          ws_id,          /* workstation identifier */
    Pint          *err_ind,       /* OUT error indicator */
    Ppoint        *point         /* OUT pick correlation point */
);

```

INQUIRE DIRECT INTERPRETATION PICK SET STATUS

```

void pinq_di_pick_set_status (
    Pint          ws_id,          /* workstation identifier */
    Pint          *err_ind,       /* OUT error indicator */
    Ppick_stat    *pick_stat     /* OUT maximum number of pick
                                /* reports reached
);

```

INQUIRE PICK MAPPING STATE

```

void pinq_pick_mapping_state (
    Pint          ws_id,          /* workstation identifier */
    Pstore        store,         /* handle to Store object */
    Pint          *err_ind,       /* OUT error indicator */
    Pecho_switch  *echo,         /* OUT pick echo switch */
    Pfilter        **filter,      /* OUT pick filter */
    Pint          *pick_type,     /* OUT pick type */
    Pint          *pet,           /* OUT pick mapping prompt and
                                /* echo type
    Pdi_pick_data **pick_data,    /* OUT pick data record */
    Ppath_order   *order         /* pick path order */
);

```

NOTE — The memory referenced by *filter, *pick_type, and *pick_data is managed by store.

INQUIRE LISTS OF AVAILABLE LOGICAL INPUT DEVICES

```

void pinq_lists_avail_lids (
    Pint        ws_id,          /* workstation identifier */
    Pstore      store,          /* handle to Store object */
    Pint        *err_ind,       /* OUT error indicator */
    Pint_list   **avail_loc_dev, /* OUT list available locator LIDs */
    Pint_list   **avail_stroke_dev, /* OUT list available stroke LIDs */
    Pint_list   **avail_val_dev, /* OUT list available valuator LIDs */
    Pint_list   **avail_choice_dev, /* OUT list available choice LIDs */
    Pint_list   **avail_pick_dev, /* OUT list available pick LIDs */
    Pint_list   **avail_string_dev, /* OUT list available string LIDs */
    Pint_list   **avail_set_dev, /* OUT list available set LIDs */
    Pint_list   **avail_compos_dev /* OUT list available composite LIDs */
);

```

INQUIRE POSTING GROUP

```

void pinq_post_grp (
    Pint        ws_id,          /* workstation identifier */
    Pint        grp_id,         /* posting group identifier */
    Pstore      store,          /* handle to Store object */
    Pint        *err_ind,       /* OUT error indicator */
    Pint        *view_ind,      /* OUT default view index */
    Ppost_grp_status *post_grp_status, /* OUT posting group status */
    Pbackg_style *backg_style,   /* OUT background style */
    Pbackg_method **backg_method, /* OUT background method data */
    Pborder_indic *border_indic, /* OUT border indicator */
    Pint        *border_ind     /* OUT border index */
);

```

NOTE — The memory referenced by ***backg_method** is managed by store.

INQUIRE POSTED STRUCTURES FROM POSTING GROUP

```

void pinq_posted_structs_from_post_grp (
    Pint        ws_id,          /* workstation id.          */
    Pint        num_elems_appl_list, /* # elems in appl list    */
    Pint        start_ind,       /* starting index           */
    Pint        *err_ind,        /* OUT error indicator      */
    Pint_list    *struct_ids,     /* OUT list of posted struct nets */
    Pint        *num_elems_impl_list /* OUT # elems in impl list */
);

```

INQUIRE DIRECT INTERPRETATION MODE

```

void pinq_di_mode (
    Pint        ws_id,          /* workstation identifier    */
    Ptrav_type   trav_type,     /* traversal type            */
    Pint        *err_ind,       /* OUT error indicator       */
    Pdi_mode     *mode          /* OUT direct interpretation mode */
);

```

INQUIRE PICTURE STATUS

```

void pinq_pict_status (
    Pint        ws_id,          /* workstation identifier    */
    Ptrav_type   trav_type,     /* traversal type            */
    Pint        *err_ind,       /* OUT error indicator       */
    Ppict_stat   *pict_stat     /* OUT picture status       */
);

```

INQUIRE TARGET STATE

```

void pinq_targ_st (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *targ_addr,  /* target address */
    Pstore        store,          /* handle to Store object */
    Pint          *err_ind,        /* OUT error indicator */
    Pint          *offset,         /* OUT offset from base target */
    Ptarg_data_st *st_nr_pict,     /* OUT state of non-retained */
                                /* picture */
    Ptarg_data_st *st_ret_pict,    /* OUT state of retained */
                                /* picture */
    Pvisual_st     *visual_st,     /* OUT target state of */
                                /* visual rep. */
    Ptarg_empty_st *empty_st,      /* OUT target empty */
    Ptarg_type_list **targ_types   /* OUT target usage list */
);

```

NOTE — The memory referenced by *targ_types is managed by store.

INQUIRE TRAVERSAL RESOURCES ASSOCIATED WITH TARGET

```

void pinq_trav_res_assoc_targ (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *targ_addr,  /* target address */
    Pint          num_elems_appl_list, /* # elems in appl list */
    Pint          starting_ind,       /* start index */
    Pint          *err_ind,          /* OUT error indicator */
    Pint_list     *res_ids,          /* OUT list of associated */
                                /* traversal resources */
    Pint          *num_elems_impl_list /* OUT # elems in impl list */
);

```

INQUIRE TARGET ASSOCIATED WITH TRAVERSAL RESOURCE

```

void pinq_targ_assoc_trav_res (
    Pint          ws_id,          /* workstation identifier */
    Pint          res_id,         /* traversal resource identifier */
    Pint          *err_ind,        /* OUT error indicator */
    Passoc_flag   *assoc_flag,     /* OUT association flag */
    Pint          *offset,         /* OUT offset from base target */
);

```

INQUIRE IMAGE RESOURCE

```

void pinq_image_res (
    Pint          ws_id,          /* workstation identifier */
    Pint          image_res_id,   /* image resource identifier */
    Pstore        store,         /* store */
    Pint          *err_ind,       /* OUT error indicator */
    Pint_size     *dims,         /* OUT m,n dimensions */
    Pimage_res    **image_res,   /* OUT image resource */
    Paccess_flag  *access_flag,  /* OUT access flag */
);

```

NOTE — The memory referenced by *image_res is managed by store.

INQUIRE POSTED DIRECT INTERPRETATION STRUCTURE

```

void pinq_posted_di_struct (
    Pint          ws_id,          /* workstation identifier */
    Ptrav_type    trav_type,     /* traversal type */
    Pint          *err_ind,       /* OUT error indicator */
    Pposted_ind   *posted_ind,   /* OUT posted indicator */
    Pint          *grp_id,       /* OUT posting group identifier */
);

```

INQUIRE POLYLINE REPRESENTATION FULL

```

void pinq_line_rep_full (
    Pint          ws_id,          /* workstation id */
    Pint          index,         /* polyline bundle index */
    Pint          *err_ind,       /* OUT error indicator */
    Pline_bundle_full *rep       /* polyline representation full */
);

```

INQUIRE EDGE REPRESENTATION FULL

```

void pinq_edge_rep_full (
    Pint          ws_id,          /* workstation id          */
    Pint          index,          /* edge bundle index      */
    Pint          *err_ind,        /* OUT error indicator     */
    Pedge_bundle_full *rep        /* edge representation full */
);

```

INQUIRE EXTENDED PATTERN REPRESENTATION

```

void pinq_ext_pat_rep (
    Pint          ws_id,          /* workstation identifier   */
    Pint          index,          /* pattern index           */
    Pinq_type     type,          /* type of returned value  */
    Pstore        store,         /* handle to store object  */
    Pint          *err_ind,        /* OUT error indicator     */
    Ppattern      **pattern      /* OUT pattern data        */
);

```

NOTE — The memory referenced by *pattern is managed by store.

INQUIRE VIEW STATUS

```

void pinq_view_status (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          *err_ind,        /* OUT error indicator     */
    Pview_status  *view_status    /* OUT view status         */
);

```

INQUIRE VIEW REFERENCE POINT 3

```

void pinq_view_ref_point3 (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          *err_ind,        /* OUT error indicator     */
    Ppoint3       *view_ref_point /* OUT view reference point */
);

```

INQUIRE VIEW REFERENCE POINT

```

void pinq_view_ref_point (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          *err_ind,       /* OUT error indicator     */
    Ppoint        *view_ref_point /* OUT view reference point */
);

```

INQUIRE VIEW PLANE NORMAL

```

void pinq_view_plane_norm (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          *err_ind,       /* OUT error indicator     */
    Pvec3         *view_norm_vec  /* OUT view plane normal   */
);

```

INQUIRE VIEW UP VECTOR 3

```

void pinq_view_up_vec3 (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          *err_ind,       /* OUT error indicator     */
    Pvec3         *view_up_vec   /* OUT view up vector      */
);

```

INQUIRE VIEW UP VECTOR

```

void pinq_view_up_vec (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          *err_ind,       /* OUT error indicator     */
    Pvec          *view_up_vec   /* OUT view up vector      */
);

```

INQUIRE VIEW WINDOW LIMITS

```

void pinq_view_win_limits (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          *err_ind,       /* OUT error indicator     */
    Plimit        *win           /* OUT view window limits */
);

```

INQUIRE PROJECTION VIEWPORT 3

```

void pinq_proj_vp3 (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          *err_ind,       /* OUT error indicator     */
    Plimit3       *proj_vp       /* OUT projection viewport limits */
);

```

INQUIRE PROJECTION VIEWPORT

```

void pinq_proj_vp (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          *err_ind,       /* OUT error indicator     */
    Plimit        *proj_vp       /* OUT projection viewport limits */
);

```

INQUIRE PROJECTION TYPE

```

void pinq_proj_type (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          *err_ind,       /* OUT error indicator     */
    Pproj_type    *proj_type     /* OUT projection type     */
);

```

INQUIRE PROJECTION REFERENCE POINT

```

void pinq_proj_ref_point (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          *err_ind,       /* OUT error indicator     */
    Ppoint3       *proj_ref_point /* OUT projection reference point */
);

```

INQUIRE VIEW PLANE DISTANCE

```

void pinq_view_plane_dist (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          *err_ind,       /* OUT error indicator     */
    Pfloat        *view_plane     /* OUT view plane distance */
);

```

INQUIRE FRONT PLANE DISTANCE

```

void pinq_front_plane_dist (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          *err_ind,       /* OUT error indicator     */
    Pfloat        *front_plane    /* OUT front plane distance */
);

```

INQUIRE BACK PLANE DISTANCE

```

void pinq_back_plane_dist (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          *err_ind,       /* OUT error indicator     */
    Pfloat        *back_plane     /* OUT back plane distance */
);

```

INQUIRE X-Y CLIPPING INDICATOR

```

void pinq_xy_clip_indicator (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          *err_ind,       /* OUT error indicator     */
    Pclip_ind     *xy_clip        /* OUT x-y clipping indicator */
);

```

INQUIRE FRONT CLIPPING INDICATOR

```

void pinq_front_clip_indicator (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          *err_ind,       /* OUT error indicator     */
    Pclip_ind     *front_clip     /* OUT front clipping indicator */
);

```

INQUIRE BACK CLIPPING INDICATOR

```

void pinq_back_clip_indicator (
    Pint          ws_id,          /* workstation id          */
    Pint          view_ind,       /* view index              */
    Pint          *err_ind,       /* OUT error indicator     */
    Pclip_ind     *back_clip      /* OUT back clipping indicator */
);

```

INQUIRE HIGHLIGHTING REPRESENTATION

```

void pinq_highl_rep (
    Pint          ws_id,          /* workstation identifier   */
    Pint          index,         /* highlighting index       */
    Pinq_type     type,          /* type of returned value   */
    Pstore        store,         /* handle to store object   */
    Pint          *err_ind,       /* OUT error indicator     */
    Phighl_method **method       /* OUT highlighting method data */
);

```

NOTE — The memory referenced by *method is managed by store.

INQUIRE TEXTURE REPRESENTATION

```

void pinq_texture_rep (
    Pint          ws_id,          /* workstation id          */
    Pint          index,          /* texture index           */
    Pinq_type     type,           /* type of returned values */
    Pstore        store,          /* handle to Store object  */
    Pint          *err_ind,        /* OUT error indicator     */
    Ptexture_rep  **rep           /* OUT texture representation */
);

```

NOTE — The memory referenced by *rep is managed by store.

INQUIRE DIRECT INTERPRETATION PICK STATE 3

```

void pinq_di_pick_st3 (
    Pint          ws_id,          /* workstation identifier   */
    Pinq_type     type,           /* type of returned value  */
    Pstore        store,          /* store for measure data  */
    Pint          *err_ind,        /* OUT error indicator     */
    Pecho_switch  *echo,          /* OUT echo switch         */
    Pfilter       **pick_filter,  /* OUT di pick filter      */
    Ppoint3       *correlation_pt, /* OUT pick correlation point */
    Pint          *pick_type,      /* OUT pick type           */
    Pint          *max_sets,       /* OUT max sets to return  */
    Pin_status    *init_status,   /* OUT initial status      */
    Ppick_path_list **init_pick_sets, /* OUT initial di pick sets */
    Pint          *pet,           /* OUT prompt and echo type */
    Plimit3       *echo_vol,      /* OUT echo volume         */
    Ppick_data    **pick_data,    /* OUT input data record   */
    Ppath_order   *order          /* OUT pick path order     */
);

```

NOTE — The memory referenced by *pick_filter, *pick_type, *init_pick_sets, and *pick_data is managed by store.

INQUIRE DIRECT INTERPRETATION PICK STATE

```

void pinq_di_pick_st (
    Pint          ws_id,          /* workstation identifier */
    Pinq_type     type,          /* type of returned value */
    Pstore        store,         /* store for measure data */
    Pint          *err_ind,       /* OUT error indicator */
    Pecho_switch  *echo_switch,  /* OUT echo switch */
    Pfilter       **pick_filter,  /* OUT di pick filter */
    Ppoint        *correlation_pt, /* OUT pick correlation point */
    Pint          *pick_type,     /* OUT pick type */
    Pint          *max_sets,      /* OUT max sets to return */
    Pin_status    *init_status,  /* OUT initial status */
    Ppick_path_list **init_pick_sets, /* OUT initial di pick sets */
    Pint          *pet,          /* OUT prompt and echo type */
    Plimit        *echo_area,    /* OUT echo area */
    Ppick_data    **pick_data,   /* OUT input data record */
    Ppath_order   *order         /* OUT pick path order */
);

```

NOTE — The memory referenced by *pick_filter, *pick_type, *init_pick_sets, and *pick_data is managed by store.

INQUIRE APPLICATION FILTER

```

void pinq_appl_filter (
    Pint          ws_id,          /* workstation identifier */
    Pint          filter_sel,     /* filter selection */
    Pstore        store,         /* handle to store object */
    Pint          *err_ind,       /* OUT error indicator */
    Pfilter       **appl_filter  /* OUT application filter */
);

```

NOTE — The memory referenced by *appl_filter is managed by store.

NOTE — The memory referenced by *avail_loc_dev, *avail_stk_dev, *avail_val_dev, *avail_cho_dev, *avail_pik_dev, *avail_stg_dev, *avail_set_dev, and *avail_cmp_dev is managed by store.

INQUIRE LOGICAL INPUT DEVICE DEFINITION

```

void pinq_lid_def (
    Pint          ws_id,          /* workstation identifier */
    Pin_class     dev_class,      /* input class            */
    Pint          device,         /* device number          */
    Pstore        store,          /* handle to Store object */
    Pint          *err_ind,       /* OUT error indicator    */
    Pint          *meas_proc,     /* OUT measure process    */
    Ptrig_process_list **trig_procs, /* OUT trigger processes */
    Pecho_process_list **echo_procs, /* OUT echo processes    */
    Pack_process_list **ack_procs  /* OUT ack. processes     */
);

```

NOTE — The memory referenced by *trig_procs, *echo_procs, and *ack_procs is managed by store.

INQUIRE SET MEASURE DEFINITION

```

void pinq_set_meas_def (
    Pint          ws_id,          /* workstation identifier */
    Pint          meas_id,        /* set measure process id */
    Pint          *err_ind,       /* OUT error indicator    */
    Pint          *max_meas,      /* OUT max measures in set */
    Pmeas_process *meas_proc     /* OUT base measure process */
);

```

INQUIRE SET DEVICE STATE 3

```
void pinq_set_st3 (
```

```

    Pint          ws_id,          /* workstation identifier */
    Pint          dev,            /* set device number      */
    Pstore        store,          /* store for measure data */
    Pint          *err_ind,        /* OUT error indicator    */
    Pop_mode      *mode,          /* OUT operating mode     */
    Pecho_switch  *echo,          /* OUT echo switch        */
    Pfilter        **filter,       /* OUT set pick filter    */
    Pset_measure  **measure,       /* OUT initial measure    */
    Pint          *pet,            /* OUT prompt and echo type */
    Plimit3       *echo_vol,       /* OUT echo volume        */
    Pset_data     **set_data       /* OUT input data record  */

```

```
);
```

NOTE — The memory referenced by *filter, *measure, and *set_data is managed by store.

INQUIRE SET DEVICE STATE

```
void pinq_set_st (
```

```

    Pint          ws_id,          /* workstation identifier */
    Pint          dev,            /* set device number      */
    Pstore        store,          /* store for measure data */
    Pint          *err_ind,        /* OUT error indicator    */
    Pop_mode      *mode,          /* OUT operating mode     */
    Pecho_switch  *echo,          /* OUT echo switch        */
    Pfilter        **filter,       /* OUT set pick filter    */
    Pset_measure  **measure,       /* OUT initial measure    */
    Pint          *pet,            /* OUT prompt and echo type */
    Plimit        *echo_area,      /* OUT echo area          */
    Pset_data     **set_data       /* OUT input data record  */

```

```
);
```

NOTE — The memory referenced by *filter, *measure, and *set_data is managed by store.

INQUIRE COMPOSITE MEASURE DEFINITION

```

void pinq_composite_meas_def (
    Pint          ws_id,          /* workstation identifier */
    Pint          meas_id,        /* composite measure proc id */
    Pstore        store,          /* store for measure procs */
    Pint          *err_ind,        /* OUT error indicator */
    Pmeas_process_list **meas_procs /* OUT measure processes */
);

```

NOTE — The memory referenced by *meas_procs is managed by store

INQUIRE COMPOSITE DEVICE STATE 3

```

void pinq_composite_st3 (
    Pint          ws_id,          /* workstation identifier */
    Pint          dev,            /* composite dev. number */
    Pstore        store,          /* store for measure data */
    Pint          *err_ind,        /* OUT error indicator */
    Pop_mode      *mode,          /* OUT operating mode */
    Pecho_switch  *echo,          /* OUT echo switch */
    Pfilter        **filter,       /* OUT composite pick filter */
    Pcomposite_measure **measure, /* OUT initial measure */
    Pint          *pet,            /* OUT prompt and echo type */
    Plimit3        *echo_vol,      /* OUT echo volume */
    Pcomposite_data **composite_data /* OUT input data record */
);

```

NOTE — The memory referenced by *filter, *measure, and *composite_data is managed by store.

INQUIRE COMPOSITE DEVICE STATE

```

void pinq_composite_st (
    Pint          ws_id,          /* workstation identifier */
    Pint          dev,            /* composite dev. number */
    Pstore        store,          /* store for measure data */
    Pint          *err_ind,       /* OUT error indicator */
    Pop_mode      *mode,          /* OUT operating mode */
    Pecho_switch  *echo,          /* OUT echo switch */
    Pfilter        **filter,      /* OUT composite pick filter */
    Pcomposite_measure **measure, /* OUT initial measure */
    Pint          *pet,           /* OUT prompt and echo type */
    Plimit        *echo_area,     /* OUT echo area */
    Pcomposite_data **composite_data /* OUT input data record */
);

```

NOTE — The memory referenced by *filter, *measure, and *composite_data is managed by store.

INQUIRE LOGICAL INPUT DEVICE ATTACHED TO VIEW

```

void pinq_lid_attached_to_view (
    Pint          ws_id,          /* workstation identifier */
    Pin_class     dev_class,      /* input class */
    Pint          dev,            /* logical input dev. number */
    Pstore        store,          /* store for list of attachment data */
    Pint          *err_ind,       /* OUT error indicator */
    Pint          *num_attached,  /* OUT num view attachments for LID */
    Pview_attach **attached      /* OUT list of view attachments for LID */
);

```

NOTE — The memory referenced by *attached is managed by store.

INQUIRE LOGICAL INPUT DEVICE ATTACHED TO LIGHT SOURCE

```

void pinq_lid_attached_to_light_src (
    Pint          ws_id,          /* workstation identifier */
    Pin_class     dev_class,      /* input class */
    Pint          dev,            /* logical input dev. number */
    Pstore        store,          /* store for list of attachment data */
    Pint          *err_ind,       /* OUT error indicator */
    Pint          *num_attached,  /* OUT num light source attachments */
    Plight_attach **attached     /* OUT list of light source
                                /* attachments for LID */

);

```

NOTE — The memory referenced by *attached is managed by store.

13.8.4 Inquiry functions for workstation description table**INQUIRE DEVICE COORDINATE CLIP REGIONS FACILITIES**

```

void pinq_dc_clip_regions_facs(
    Pint          ws_type,        /* workstation type */
    Pstore        store,          /* handle to Store object */
    Pint          *err_ind,       /* OUT error indicator */
    Pdc_clip_facs **facs         /* OUT DC clip region facilities */

);

```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE CONFIGURATION SETTING FACILITIES

```

void pinq_config_setting_facs (
    Pint          ws_type,        /* workstation type */
    Pstore        store,          /* handle to Store object */
    Pint          *err_ind,       /* OUT error indicator */
    Pconfig_setting_facs **facs, /* OUT configuration setting
                                /* facilities */

);

```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE TARGET FACILITIES

```

void pinq_targ_facs (
    Pint          ws_type,          /* workstation type          */
    Pstore        store,            /* handle to Store object    */
    Pint          *err_ind,         /* OUT error indicator       */
    Ptarget_facs  *facs             /* OUT target facilities     */
);

```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE DEFAULT TARGET DISPOSITION

```

void pinq_def_targ_disp (
    Pint          ws_type,          /* workstation type          */
    Pstore        store,            /* handle to Store object    */
    Pint          *err_ind,         /* OUT error indicator       */
    Ptarg_op_list **targ_ops       /* OUT list of target operations */
);

```

NOTE — The memory referenced by *targ_ops is managed by store.

INQUIRE TRAVERSAL RESOURCE FACILITIES

```

void pinq_trav_res_facs (
    Pint          ws_type,          /* workstation type          */
    Pstore        store,            /* handle to Store object    */
    Pint          *err_ind,         /* OUT error indicator       */
    Ptrav_facs    **facs           /* OUT traversal resource facilities */
);

```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE CONDITIONAL TRAVERSAL FACILITIES

```

void pinq_cond_trav_facs (
    Pint      ws_type,          /* workstation type          */
    Pstore     store,          /* handle to Store object    */
    Pint      *err_ind,        /* OUT error indicator       */
    Pcond_trav_facs **facs,    /* OUT conditional traversal facilities */
    */
);

```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE DIRECT INTERPRETATION TRAVERSAL FACILITIES

```

void pinq_di_trav_facs (
    Pint      ws_type,          /* workstation type          */
    Pstore     store,          /* handle to Store object    */
    Pint      *err_ind,        /* OUT error indicator       */
    Pdi_trav_facs **facs,    /* OUT conditional traversal facilities */
    */
);

```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE DYNAMICS OF WORKSTATION ATTRIBUTES TEXTURE

```

void pinq_dyns_ws_attrs_texture (
    Pint      ws_type,          /* workstation type          */
    Pint      *err_ind,        /* OUT error indicator       */
    Pdyn_ws_attrs_texture *dyns /* OUT texture dynamics     */
);

```

INQUIRE DYNAMICS OF POSTING GROUPS

```

void pinq_dyns_post_grps (
    Pint      ws_type,          /* workstation type          */
    Pint      *err_ind,        /* OUT error indicator       */
    Pdyns_post_grps *dyns      /* OUT posting dynamics     */
);

```

INQUIRE DEFAULT DIRECT INTERPRETATION PICK DATA 3

```

void pinq_def_di_pick_data3 (
    Pint          ws_type,          /* workstation type          */
    Pstore        store,            /* store for measure data    */
    Pint          *err_ind,         /* OUT error indicator       */
    Pint_list     **pet_list,       /* OUT list prompt/echo types */
    Plimit3       *echo_vol,        /* OUT echo volume          */
    Pdi_pick_data **pick_data      /* OUT default data record   */
);

```

NOTE — The memory referenced by *pet_list and *pick_data is managed by store.

INQUIRE DEFAULT DIRECT INTERPRETATION PICK DATA

```

void pinq_def_di_pick_data (
    Pint          ws_type,          /* workstation type          */
    Pstore        store,            /* store for measure data    */
    Pint          *err_ind,         /* OUT error indicator       */
    Pint_list     **pet_list,       /* OUT list prompt/echo types */
    Plimit        *echo_area,       /* OUT echo area            */
    Pdi_pick_data **pick_data      /* OUT default data record   */
);

```

NOTE — The memory referenced by *pet_list and *pick_data is managed by store.

INQUIRE POSTING GROUP FACILITIES

```

void pinq_post_grp_fac (
    Pint          ws_type,          /* workstation type          */
    Pstore        store,            /* handle to store object    */
    Pint          *err_ind,         /* OUT error indicator       */
    Ppost_grp_fac **fac            /* OUT posting group facilities */
);

```

NOTE — The memory referenced by *fac is managed by store.

INQUIRE IMAGE RESOURCE FACILITIES

```

void pinq_image_res_fac (
    Pint      ws_type,          /* workstation type          */
    Pstore    store,           /* handle to store object    */
    Pint      *err_ind,        /* OUT error indicator       */
    Pint_list **facs,          /* OUT image resource facilities */
);

```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE LINETYPE DEFINITION SUPPORT

```

void pinq_linetype_def_support (
    Pint      ws_type,          /* workstation type          */
    Pfloat    repeat_length,    /* repeat length             */
    const Pfloat_list *segment_lengths, /* segment lengths         */
    Pint      *err_ind,        /* error indicator           */
    Psupport_indication *supported /* support indication        */
);

```

INQUIRE EXTENDED PATTERN FACILITIES

```

void pinq_ext_pat_fac (
    Pint      ws_type,          /* workstation type          */
    Pstore    store,           /* handle to store object    */
    Pint      *err_ind,        /* OUT error indicator       */
    Pext_pat_fac **facs,       /* OUT extended pattern facilities */
);

```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE HIGHLIGHTING FACILITIES

```

void pinq_highl_facs (
    Pint          ws_type,          /* workstation type          */
    Pstore        store,            /* handle to Store object    */
    Pint          *err_ind,         /* OUT error indicator       */
    Phighl_facs   *facs,            /* OUT highlighting facilities */
);

```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE ALPHA FACILITIES

```

void pinq_alpha_facs (
    Pint          ws_type,          /* workstation type          */
    Pstore        store,            /* handle to Store object    */
    Pint          *err_ind,         /* OUT error indicator       */
    Palpha_facs   **facs           /* OUT alpha facilities      */
);

```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE TEXTURE MAPPING FACILITIES

```

void pinq_texture_map_facs (
    Pint          ws_type,          /* workstation type          */
    Pstore        store,            /* handle to Store object    */
    Pint          *err_ind,         /* OUT error indicator       */
    Ptexture_map_facs **texture_map_facs /* OUT texture facilities */
);

```

NOTE — The memory referenced by *texture_map_facs is managed by store.

INQUIRE TEXTURE FACILITIES

```

void pinq_texture_facs (
    Pint          ws_type,          /* workstation type          */
    Pstore        store,            /* handle to Store object    */
    Pint          *err_ind,         /* OUT error indicator       */
    Ptexture_facs **texture_facs    /* OUT texture facilities    */
);

```

NOTE — The memory referenced by *texture_facs is managed by store.

INQUIRE MIPMAP FACILITIES

```

void pinq_mipmap_facs (
    Pint          ws_type,          /* workstation type          */
    Pint          *err_ind,         /* OUT error indicator       */
    Pmipmap_facs *facs             /* OUT mipmap facilities    */
);

```

INQUIRE NUMBER OF PREDEFINED APPLICATION FILTERS

```

void pinq_num_pred_appl_filters (
    Pint *err_ind,          /* OUT error indicator       */
    Pint *num_predefined,   /* OUT number predefined appl. filters */
);

```

INQUIRE WORKSTATION STATE TABLE LENGTHS TEXTURE

```

void pinq_ws_st_table_texture (
    Pint          ws_type,          /* workstation type          */
    Pint          *err_ind,         /* OUT error indicator       */
    Pws_st_tables_texture *lengths  /* OUT lengths of workstation */
                                   /* tables                    */
);

```

INQUIRE WORKSTATION STATE TABLE LENGTHS HIGHLIGHTING

```

void pinq_ws_st_table_highl (
    Pint          ws_type,      /* workstation type          */
    Pint          *err_ind,     /* OUT error indicator       */
    Pws_st_tables_highl *lengths /* OUT lengths of workstation */
                                /* tables                    */
);

```

INQUIRE PICK MAPPING FACILITIES

```

void pinq_pick_mapping_fac (
    Pint          ws_type,      /* workstation type          */
    Pstore        store,        /* store for pick mapping fac */
    Pint          *err_ind,     /* OUT error indicator       */
    Ppick_mapping_fac *fac      /* OUT pick mapping facilities */
);

```

INQUIRE NUMBER OF AVAILABLE NON-ATOMIC LOGICAL INPUT DEVICES

```

void pinq_num_avail_na_in (
    Pint          ws_type,      /* workstation type          */
    Pint          *err_ind,     /* OUT error indicator       */
    Pnum_na_in *numin          /* OUT number of non-atomic LIDs */
);

```

INQUIRE LOCATOR FACILITIES

```

void pinq_loc_fac (
    Pint          ws_type,      /* workstation type          */
    Pint          device,       /* locator device number     */
    Pstore        store,        /* store                      */
    Patomic_lid_fac **fac      /* OUT locator facilities    */
);

```

NOTE — The memory referenced by *fac is managed by store.

INQUIRE STROKE FACILITIES

```

void pinq_stroke_facs (
    Pint          ws_type,      /* workstation type          */
    Pint          device,      /* stroke device number      */
    Pstore        store,       /* store                      */
    Pint          *err_ind,     /* OUT error indicator       */
    Patomic_lid_facs **facs     /* OUT stroke facilities     */
);

```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE VALUATOR FACILITIES

```

void pinq_val_facs (
    Pint          ws_type,      /* workstation type          */
    Pint          device,      /* valuator device number    */
    Pstore        store,       /* store                      */
    Pint          *err_ind,     /* OUT error indicator       */
    Patomic_lid_facs **facs     /* OUT valuator facilities   */
);

```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE CHOICE FACILITIES

```

void pinq_choice_facs (
    Pint          ws_type,      /* workstation type          */
    Pint          device,      /* choice device number      */
    Pstore        store,       /* store                      */
    Pint          *err_ind,     /* OUT error indicator       */
    Patomic_lid_facs **facs     /* OUT choice facilities     */
);

```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE PICK FACILITIES

```

void pinq_pick_facs (
    Pint          ws_type,      /* workstation type          */
    Pint          device,      /* pick device number        */
    Pstore        store,       /* store                     */
    Pint          *err_ind,     /* OUT error indicator       */
    Patomic_lid_facs **facs    /* OUT pick facilities       */
);

```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE STRING FACILITIES

```

void pinq_string_facs (
    Pint          ws_type,      /* workstation type          */
    Pint          device,      /* string device number      */
    Pstore        store,       /* store                     */
    Pint          *err_ind,     /* OUT error indicator       */
    Patomic_lid_facs **facs    /* OUT string facilities*/
);

```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE SET FACILITIES

```

void pinq_set_facs(
    Pint          ws_type,      /* workstation type          */
    Pstore        store,       /* store                     */
    Pint          *err_ind,     /* OUT error indicator       */
    Pset_facs    **facs       /* OUT set facilities       */
);

```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE COMPOSITE FACILITIES

```

void pinq_composite_facs (
    Pint          ws_type,          /* workstation type          */
    Pint          device,          /* composite device number   */
    Pstore        store,           /* store                     */
    Pint          *err_ind,        /* OUT error indicator       */
    Pcomposite_facs **facs        /* OUT composite facs       */
);

```

NOTE — The memory referenced by *facs is managed by store.

INQUIRE PREDEFINED POSTING GROUP

```

void pinq_pred_post_grp (
    Pint          ws_type,          /* workstation type          */
    Pint          grp_id,          /* posting group identifier   */
    Pint          *err_ind,        /* OUT error indicator       */
    Pint          *view_ind,       /* OUT default view index    */
    Ppost_grp_status *post_grp_status, /* OUT posting group status */
    Pbackg_style  *backg_style,    /* OUT background style      */
    Pbackg_method *backg_method,   /* OUT background method     */
    Pborder_indic *border_indic,   /* OUT border indicator      */
    Pint          *border_ind       /* OUT border index         */
);

```

INQUIRE PREDEFINED IMAGE RESOURCE

```

void pinq_pred_image_res (
    Pint          ws_type,          /* workstation type          */
    Pint          image_res_id,     /* image resource identifier  */
    Pstore        store,           /* handle to store object    */
    Pint          *err_ind,        /* OUT error indicator       */
    Pint_size     *dims,           /* OUT m,n dimensions       */
    Pimage_res    **image_res,     /* OUT image resource        */
    Paccess_flag  *access_flag     /* OUT access flag          */
);

```

NOTE — The memory referenced by *image_res is managed by store.

INQUIRE PREDEFINED ASSOCIATION OF TARGET WITH TRAVERSAL RESOURCES

```

void pinq_pred_assoc_targ_trav_res (
    Pint          ws_type,          /* workstation type          */
    const Ptarg_addr *targ_addr,    /* target address            */
    Pint          num_elems_appl_list, /* # elems in appl. list    */
    Pint          start_ind,         /* start element to return   */
    Pint          *err_ind,          /* OUT error indicator       */
    Pint_list     **res_ids,         /* OUT list of associated    */
                                   /* traversal resource ids     */
    Pint          *num_elems_impl_list /* # elems in impl. list    */
);

```

INQUIRE PREDEFINED ASSOCIATION OF TRAVERSAL RESOURCE WITH TARGET

```

void pinq_pred_assoc_trav_res_targ (
    Pint          ws_type,          /* workstation type          */
    Pint          res_id,           /* traversal resource identifier */
    Pint          *err_ind,         /* OUT error indicator       */
    Passoc_flag   *assoc_flag,     /* OUT association flag       */
    Pint          *offset,          /* OUT offset from base target */
);

```

INQUIRE MARKER TYPE DEFINITION SUPPORT

```

void pinq_marker_type_def_support (
    Pint          ws_type,          /* workstation type          */
    const Pmarker_desc *marker,    /* marker descriptor         */
    Pint          *err_ind,         /* error indicator           */
    Psupport_indication *supported /* support indication        */
);

```

INQUIRE PREDEFINED POLYLINE REPRESENTATION FULL

```

void pinq_pred_line_rep_full (
    Pint          ws_type,      /* workstation type          */
    Pint          index,        /* predefined polyline bundle index */
    Pint          *err_ind,     /* OUT error indicator       */
    Pline_bundle_full *rep      /* polyline representation full */
);

```

INQUIRE PREDEFINED EDGE REPRESENTATION FULL

```

void pinq_pred_edge_rep_full (
    Pint          ws_type,      /* workstation type          */
    Pint          index,        /* predefined edge bundle index */
    Pint          *err_ind,     /* OUT error indicator       */
    Pedge_bundle_full *rep      /* edge representation full   */
);

```

INQUIRE PREDEFINED EXTENDED PATTERN REPRESENTATION

```

void pinq_pred_ext_pat_rep (
    Pint          ws_type,      /* workstation type          */
    Pint          index,        /* predefined pattern index   */
    Pstore        store,        /* handle to store object     */
    Pint          *err_ind,     /* OUT error indicator       */
    Ppattern      **pattern     /* OUT pattern data          */
);

```

NOTE — The memory referenced by *pattern is managed by store..

INQUIRE PREDEFINED HIGHLIGHTING REPRESENTATION

```

void pinq_pred_highl_rep (
    Pint          ws_type,          /* workstation type          */
    Pint          index,            /* predefined highl. index   */
    Pstore        store,            /* handle to store object    */
    Pint          *err_ind,         /* OUT error indicator       */
    Phighl_method **method          /* OUT highl method data    */
);

```

NOTE — The memory referenced by *method is managed by store.

INQUIRE PREDEFINED TEXTURE REPRESENTATION

```

void pinq_pred_texture_rep (
    Pint          ws_type,          /* workstation type          */
    Pint          index,            /* texture index             */
    Pstore        store,            /* handle to Store object    */
    Pint          *err_ind,         /* OUT error indicator       */
    Ptexture_rep  **rep            /* OUT texture representation */
);

```

NOTE — The memory referenced by *rep is managed by store.

INQUIRE PREDEFINED APPLICATION FILTER

```

void pinq_pred_appl_filter (
    Pint          ws_type,          /* workstation identifier    */
    Pint          filter_sel,       /* filter selection          */
    Pstore        store,            /* handle to store object    */
    Pint          *err_ind,         /* OUT error indicator       */
    Pfilter       **appl_filter    /* OUT application filter    */
);

```

NOTE — The memory referenced by *appl_filter is managed by store.

INQUIRE PREDEFINED SET MEASURE DEFINITION

```

void pinq_pred_set_meas_def (
    Pint          ws_type,          /* workstation type          */
    Pint          meas_proc_id,     /* set measure proc id      */
    Pint          *err_ind,         /* OUT error indicator       */
    Pint          *max_measures,    /* OUT max measures in set  */
    Pmeas_process *meas_proc       /* OUT base measure process */
);

```

INQUIRE PREDEFINED COMPOSITE MEASURE DEFINITION

```

void pinq_pred_composite_meas_def (
    Pint          ws_type,          /* workstation type          */
    Pint          meas_proc_id,     /* composite measure proc id */
    Pstore        store,           /* store for measure data    */
    Pint          *err_ind,         /* OUT error indicator       */
    Pmeas_process_list **meas_procs /* OUT measure processes    */
);

```

NOTE — The memory referenced by *meas_procs is managed by store.

INQUIRE DEFAULT SET DEVICE DATA 3

```

void pinq_def_set_data3 (
    Pint          ws_type,          /* workstation type          */
    Pint          device,          /* set device number        */
    Pstore        store,           /* store for measure data    */
    Pint          *err_ind,         /* OUT error indicator       */
    Pint_list     **pet_list,      /* OUT list prompt/echo types */
    Plimit3       *echo_vol,       /* OUT echo volume          */
    Pset_data     **set_data       /* OUT default data record  */
);

```

NOTE — The memory referenced by *pet_list and *set_data is managed by store.

INQUIRE DEFAULT SET DEVICE DATA

```

void pinq_def_set_data (
    Pint          ws_type,          /* workstation type          */
    Pint          device,          /* set device number        */
    Pstore        store,          /* store for measure data   */
    Pint          *err_ind,        /* OUT error indicator      */
    Pint_list     **pet_list,      /* OUT list prompt/echo types */
    Plimit        *echo_area,     /* OUT echo area           */
    Pset_data     **set_data      /* OUT default data record  */
);

```

NOTE — The memory referenced by *pet_list and *set_data is managed by store.

INQUIRE DEFAULT COMPOSITE DEVICE DATA 3

```

void pinq_def_composite_data3 (
    Pint          ws_type,          /* workstation type          */
    Pint          device,          /* composite device number   */
    Pstore        store,          /* store for measure data   */
    Pint          *err_ind,        /* OUT error indicator      */
    Pint_list     **pet_list,      /* OUT list prompt/echo types */
    Plimit3       *echo_vol,      /* OUT echo volume          */
    Pcomposite_data **composite_data /* OUT default data record  */
);

```

NOTE — The memory referenced by *pet_list and *composite_data is managed by store.

INQUIRE DEFAULT COMPOSITE DEVICE DATA

```

void pinq_def_composite_data (
    Pint          ws_type,          /* workstation type          */
    Pint          device,          /* composite device number   */
    Pstore        store,          /* store for measure data   */
    Pint          *err_ind,        /* OUT error indicator      */
    Pint_list     **pet_list,      /* OUT list prompt/echo types */
    Plimit        *echo_area,     /* OUT echo area           */
    Pcomposite_data **composite_data /* OUT default data record  */
);

```

NOTE — The memory referenced by *pet_list and *composite_data is managed by store.

13.8.5 Inquiry functions for structure state list

INQUIRE SET OF GROUPS TO WHICH POSTED

```
void pinq_grps_posted (  
    Pint        ws_id,           /* workstation identifier */  
    Pint        struct_id,       /* structure identifier */  
    Pint        num_elems_appl_list, /* # elems in appl list */  
    Pint        start_ind,       /* starting index */  
    Pint        *err_ind,        /* OUT error indicator */  
    Pint_list    *grps,          /* OUT list of posting groups */  
    Pint        *num_elems_impl_list /* OUT # elems in impl list */  
);
```

Annex A Data types in compilation order and external functions

Pages 155 to 161

A.1 Macro definitions

The following definition replaces the corresponding definition:

```
“
#define PE_NOT_STOP (5) /* Ignoring function, func-
tion requires state
(PHOP, *, STOP | DISO, *) */”
```

The following definitions are added numerically by error number within the specified error macro definitions categories:

```
/* State Errors */
#define PE_NOT_DISO (8) /* Ignoring function, func-
tion requires state
(PHOP, *, DISO, *) */

#define PE_NOT_RETAINED_STOP_ONLY (9) /* Ignoring function, func-
tion requires state
(PHOP, *, STOP, *) */

#define PE_NOT_WSOP_AND_DISO (10) /* Ignoring function, func-
tion requires state
(PHOP, WSOP, DISO, *) */

/* Workstation Errors */
#define PE_BAD_TARG_OP (65) /* Ignoring function, one of
the target operations is
not supported */

#define PE_INVALID_TRAV_RES (66) /* Ignoring function, the
resource is not valid */

#define PE_TRAV_RES_ASSOC_TARG (67) /* Ignoring function, the
traversal resource is
already associated with a
target */

#define PE_TRAV_RES_NO_DISASSOC (68) /* Ignoring function, the
resource cannot be disas-
sociated */

#define PE_INCOMPAT_TRAV_RES (69) /* Ignoring function, source
and destination traversal
resources are incompatible
*/

#define PE_DI_STRUCT_NOT_POSTED (71) /* Ignoring function, the
direct interpretation
structure is not posted on
the specified workstation
*/

#define PE_DI_REND_TRAV_PROC_ACTIVE (72) /* Ignoring function, the
direct interpretation ren-
der traversal process is
already active on the
specified workstation */
```

#define PE_DI_REND_TRAV_PROC_NOT_ACTIVE	(73)	/* Ignoring function, the direct interpretation traversal process is not active on the specified workstation */
#define PE_CANNOT_CREATE_TARGET	(74)	/* Ignoring function, an additional target could not be created */
#define PE_NUM_TARGETS_NOT_REDUCED	(75)	/* Ignoring function, the number of targets cannot be reduced below the default number available for the respective workstation type */
#define PE_TARG_NOT_DESTROYED	(76)	/* Ignoring function, the target could not be destroyed */
#define PE_DISP_REND_TARG_NOT_DESTROYED	(77)	/* Ignoring function, neither the display target nor the rendering target can be destroyed */
#define PE_MULTIPASS_IN_PROGRESS	(78)	/* Ignoring function, a multi-pass operation is already in progress */
#define PE_MULTI_PASS_NOT_IN_PROGRESS	(79)	/* Ignoring function, a multi-pass operation is not in progress */
#define PE_PASS_DEF_IN_PROGRESS	(80)	/* Ignoring function, a pass definition is already in progress */
#define PE_PASS_DEF_NOT_IN_PROGRESS	(81)	/* Ignoring function, a pass definition is not in progress */
#define PE_LT_SRC_WS_NO_OUT_CAPABILITY	(82)	/* Ignoring function, the specified light source workstation does not have output capability (i.e, the workstation category is neither OUTPUT, OUTIN, nor M0) */
#define PE_POST_GRP_DEF	(83)	/* Ignoring function, the posting group has already been defined */
#define PE_POST_GRP_NOT_DEF	(84)	/* Ignoring function, the posting group has not been defined */
#define PE_POST_GRP_ID_LESS_THAN_ONE	(85)	/* Ignoring function, the posting group identifier is less than one */

#define PE_MAX_POST_GRP_EXCEEDED (86) /* Ignoring function, defining this posting group would exceed the maximum number of posting groups supported on the workstation */
 #define PE_IMAGE_RES_NOT_DEF (87) /* Ignoring function, image resource not defined */
 #define PE_BAD_IMAGE_SPEC_METHOD (88) /* Ignoring function, the image resource image specification method is not supported for this operation */
 #define PE_IMAGE_RES_CAP_NOT_SUP (89) /* Ignoring function, image resource capability is not supported on the workstation */
 #define PE_SPEC_IMAGE_RES_NOT_DEF (90) /* Ignoring function, the specified image resource has not been defined */
 #define PE_MAX_IMAGE_RES_EXCEEDED (91) /* Ignoring function, associating this image resource would exceed the maximum number of entries allowed in the workstation image resource table */
 #define PE_IMAGE_RES_EXCEEDS_CAP_WS (92) /* Ignoring function, the image resource exceeds the capabilities of the specified workstation */
 #define PE_VW_WS_OF_CATEGORY_MI (93) /* Ignoring function, the specified view workstation is of category MI */
 #define PE_LID_WS_NOT_IN_NOR_OUTIN (94) /* Ignoring function, the specified LID workstation is neither of category INPUT nor of category OUTIN */
 #define PE_NEW_WS_TYPE_NOT_REALIZED (95) /* Warning, Not all attributes were fully realized during the creation of the new workstation type */
 #define PE_WS_TYPE_CANNOT_BE_MODIFIED (96) /* Ignoring function, workstation type is a default type or bound to a workstation and cannot be modified */
 /* Output Attribute Errors */
 #define PE_NO_STATE_SAVED (141) /* Ignoring function, no state has been saved */

```

#define PE_SPEC_PAT_TYPE_NOT_SUP      (142) /* Ignoring function, the
                                           specified pattern type is
                                           not supported on the spec-
                                           ified workstation */

#define PE_PAT_TYPE_NOT_SUP_ON_INQ    (143) /* Ignoring function, pat-
                                           tern type of requested
                                           pattern table entry is not
                                           supported by this inquiry
                                           */

#define PE_MAX_VIEWS_EXCEEDED         (150) /* Ignoring function, set-
                                           ting this view table entry
                                           would exceed the maximum
                                           number of entries allowed
                                           */

#define PE_INVALID_LIMITS              (151) /* Ignoring function,  $XMIN \geq$ 
                                            $XMAX$ ,  $YMIN \geq YMAX$ ,  $ZMIN >$ 
                                            $ZMAX$ ,  $UMIN \geq UMAX$  or  $VMIN \geq$ 
                                            $VMAX$  */

#define PE_INVALID_VIEWPORT            (152) /* Ignoring function, invalid
                                           viewport:  $XMIN \geq XMAX$ ,  $YMIN$ 
                                            $\geq YMAX$ ,  $ZMIN > ZMAX$  */

#define PE_INVALID_VIEW_CLIP_LIM       (153) /* Ignoring function, invalid
                                           view clipping limits:  $XMIN$ 
                                            $\geq XMAX$ ,  $YMIN \geq YMAX$ ,  $ZMIN >$ 
                                            $ZMAX$  */

#define PE_VIEW_CLIP_LIM_NOT_NPC       (154) /* Ignoring function, the
                                           view clipping limits are
                                           not within NPC range */

#define PE_PROJ_VP_LIMITS_NOT_NPC      (155) /* Ignoring function, the
                                           projection viewport lim-
                                           its are not within NPC
                                           range */

#define PE_WS_WIN_LIM_NOT_NPC          (156) /* Ignoring function, the
                                           workstation window limits
                                           are not within NPC range
                                           */

#define PE_WS_VP_NOT_IN_DISPLAY_SPACE (157) /* Ignoring function, the
                                           workstation viewport is
                                           not within display space
                                           */

#define PE_INVALID_VIEW_PLANES         (158) /* Ignoring function, front
                                           plane and back plane dis-
                                           tances same and z-extent
                                           of projection viewport
                                           non-zero */

#define PE_VPN_LEN_ZERO                (159) /* Ignoring function, the
                                           view plane normal has
                                           length zero */

#define PE_VUP_LEN_ZERO                (160) /* Ignoring function, the
                                           view up vector has lenght
                                           zero */

#define PE_VUP_VPN_PARALLEL            (161) /* Ignoring function, view up
                                           and view plane normal vec-
                                           tors parallel */

```

#define PE_PRP_BETW_FRONT_BACK	(162) /* Ignoring function, the projection reference point is between the front and back planes */
#define PE_PRP_ON_VIEW_PLANE	(163) /* Ignoring function, the projection reference point cannot be positioned on the view plane */
#define PE_BACK_PLN_BEFORE_FRONT_PLN	(164) /* Ignoring function, the back plane is in front of the front plane */
#define PE_HIGHL_IND_LT_ONE	(165) /* Ignoring function, the highlighting index is less than one */
#define PE_HIGHL_METHOD_NOT_AVAIL	(166) /* Ignoring function, the specified highlighting method is not available on the specified workstation */
#define PE_LINETYPE_NOT_DEFINABLE	(167) /* Ignoring function, the specified linetype does not reference a definable linetype */
#define PE_MAX_DEF_LINETYPES_EXCEEDED	(168) /* Ignoring function, setting this table entry would exceed the maximum number of entries allowed in the definable linetype table */
#define PE_LINETYPE_NOT_DEFINED	(169) /* Ignoring function, the specified linetype has not been defined */
#define PE_LINETYPE_NOT_SUP	(170) /* Warning, this linetype definition is not supported on at least one of the available workstation types */
#define PE_LINETYPE_DEF_NOT_AVAIL	(171) /* Ignoring function, the specified standard or implementation-defined linetype definition is not available */
#define PE_MARKER_TYPE_NOT_DEFINABLE	(172) /* Ignoring function, the specified marker type does not reference a definable marker type */
#define PE_MAX_DEF_MARKER_TYPES_EXCEEDED	(173) /* Ignoring function, setting this table entry would exceed the maximum number of entries allowed in the definable marker type table */

```

#define PE_MARKER_TYPE_NOT_DEFINED      (174) /* Ignoring function, the
                                              specified marker type has
                                              not been defined */
#define PE_MARKER_SHAPE_INVALID          (175) /* Ignoring function, the
                                              marker shape descriptor is
                                              invalid */
#define PE_MARKER_SHAPE_TYPE_NOT_SUP     (176) /* Ignoring function, the
                                              specified marker shape
                                              type is not supported */
#define PE_MARKER_TYPE_DEF_NOT_AVAIL     (177) /* Ignoring function, the
                                              specified standard or
                                              implementation defined
                                              marker type definition is
                                              not available */
#define PE_FILTER_SEL_INVALID            (178) /* Ignoring function, the
                                              filter selection is
                                              invalid */
#define PE_FILTER_NOT_DEFINED            (179) /* Ignoring function, the
                                              specified application fil-
                                              ter has not been defined
                                              */

/* Input Errors */
#define PE_DI_PICK_TRAV_PROC_ACTIVE      (264) /* Ignoring function, the
                                              direct interpretation pick
                                              traversal process is
                                              already active on the
                                              specified workstation */
#define PE_DI_PICK_TRAV_PROC_NOT_ACTIVE  (265) /* Ignoring function, the
                                              direct interpretation pick
                                              traversal process is not
                                              active on the specified
                                              workstation */
#define PE_BAD_PICK_TYPE                  (266) /* Ignoring function, the
                                              specified pick type is not
                                              available on the speci-
                                              fied workstation */
#define PE_LISTED_MEAS_PROC_INVALID       (267) /* Ignoring function, one of
                                              the listed measure pro-
                                              cesses is invalid */
#define PE_LISTED_TRIG_PROC_INVALID       (268) /* Ignoring function, one of
                                              the listed trigger pro-
                                              cesses is invalid */
#define PE_LISTED_ECHO_PROC_INVALID       (269) /* Ignoring function, one of
                                              the listed echo processes
                                              is invalid */
#define PE_LISTED_ACK_PROC_INVALID        (270) /* Ignoring function, one of
                                              the listed acknowledge-
                                              ment processes is invalid
                                              */
#define PE_LID_NR_IN_USE                   (271) /* Ignoring function, device
                                              number already in use */
#define PE_NR_MEAS_INVALID                 (272) /* Ignoring function, number
                                              of measures is invalid */

```

```

#define PE_MEAS_ID_NOT_AVAIL          (273) /* Ignoring function, the
                                           specified measure identi-
                                           fier is not available on
                                           the specified workstation
                                           */

#define PE_MEAS_ID_IN_USE              (274) /* Ignoring function, the
                                           specified measure identi-
                                           fier is currently part of
                                           a set or composite logi-
                                           cal input device defini-
                                           tion */

#define PE_NO_PICK_MEASURE             (275) /* Ignoring function, the
                                           specified set or compos-
                                           ite device does not have a
                                           pick measure */

#define PE_LID_INAPPROP_FOR_VW_ACTION (276) /* Ignoring function, the
                                           logical input device class
                                           specified is inappropriate
                                           for the view action
                                           specified */

#define PE_LID_INAPPROP_FOR_LT_ACT    (277) /* Ignoring function, the
                                           input device class speci-
                                           fied is inappropriate for
                                           the light action speci-
                                           fied */

#define PE_LT_ACT_INAPPROP_FOR_LT_SRC (278) /* Ignoring function, the
                                           light action is inappro-
                                           priate for the light
                                           source specified */

/* Miscellaneous Errors */
#define PE_TEST_OP_INVALID             (451) /* Ignoring function, invalid
                                           test operator for test type
                                           */

#define PE_NO_WINDOW_SYSTEM            (452) /* Ignoring function, the
                                           specified workstation is
                                           not operating in a window
                                           management system envrion-
                                           ment */

#define PE_WIN_SYS_COLR_NOT_DETER      (453) /* Ignoring function, the
                                           window system colour can-
                                           not be determined */

#define PE_TEXTR_COORD_SRC_NOT_AVAIL   (600) /* Ignoring function, the
                                           specified coordinate
                                           source is not available on
                                           the specified workstation
                                           */

#define PE_DATA_VALUE_IND_LESS_1      (601) /* Ignoring function, the
                                           specified data value index
                                           is less than one */

#define PE_TEXTR_COMPOS_METHOD_NOT_AVAIL (602) /* Ignoring function, the
                                           specified composition
                                           method is not available on

```

```

the specified workstation
*/
#define PE_TEXTR_MIN_METHOD_NOT_AVAIL    (603) /* Ignoring function, the
specified minification
method is not available on
the specified workstation
*/
#define PE_TEXTR_MAG_METHOD_NOT_AVAIL    (604) /* Ignoring function, the
specified magnification
method is not available on
the specified workstation
*/
#define PE_BOUND_COND_NOT_AVAIL          (605) /* Ignoring function, the
specified boundary condi-
tion is not available on
the specified workstation
*/
#define PE_BOUND_CLAMP_METHOD_NOT_AVAIL  (606) /* Ignoring function, the
specified boundary clamp
method is not available on
the specified workstation
*/
#define PE_DEPTH_SAMPL_BIAS_OUT_OF_RANGE (607) /* Ignoring function, the
specified depth sampling
bias hint is out of range
*/
#define PE_TEXTR_IMAGE_RES_NOT_DEFINED    (608) /* Ignoring function, the
specified texture image
resource identifier is not
defined on the specified
workstation */
#define PE_RENDERING_ORDER_NOT_AVAIL     (612) /* Ignoring function, the
specified rendering order
is not available on the
specified workstation */

```

Pages 161 to 164

The following definitions are added numerically by function number to the list of function name macro definitions:

```

#define Pfn_ws_type_create                (268)
#define Pfn_ws_type_set                   (269)
#define Pfn_ws_type_get                   (270)
#define Pfn_ws_type_destroy                (271)
#define Pfn_redraw_all_structs_from_grp    (272)
#define Pfn_redraw_all_structs_on_targ     (273)
#define Pfn_redraw_all_structs_from_grp_on_targ (274)
#define Pfn_upd_targ                       (275)

```

```

#define Pfn_define_post_grp (276)
#define Pfn_undefine_post_grp (277)
#define Pfn_set_post_grp_status (278)
#define Pfn_set_post_grp_priority (279)
#define Pfn_set_post_grp_backg_style (280)
#define Pfn_set_post_grp_backg_method (281)
#define Pfn_set_post_grp_border_indic (282)
#define Pfn_set_post_grp_border_ind (283)
#define Pfn_assoc_image_res (284)
#define Pfn_disassoc_image_res (285)
#define Pfn_set_dc_clip_regions3 (286)
#define Pfn_set_dc_clip_regions (287)
#define Pfn_set_targ_manip_mode (288)
#define Pfn_set_targ_dispos (289)
#define Pfn_set_disp_targ (290)
#define Pfn_set_rend_targ (291)
#define Pfn_clear_targ (292)
#define Pfn_copy_targ (293)
#define Pfn_create_targ (294)
#define Pfn_destroy_targ (295)
#define Pfn_set_st_visual_rep (296)
#define Pfn_set_targ_st_visual_rep (297)
#define Pfn_assoc_trav_res (298)
#define Pfn_disassoc_trav_res (299)
#define Pfn_manip_trav_res (300)
#define Pfn_reset_all_trav_res (301)
#define Pfn_ret_window_system_colr (302)
#define Pfn_set_appl_int (303)
#define Pfn_set_appl_real (304)
#define Pfn_circle3 (305)
#define Pfn_circle (306)
#define Pfn_circular_arc3 (307)
#define Pfn_circular_arc (308)
#define Pfn_ellipse3 (309)
#define Pfn_ellipse (310)
#define Pfn_elliptical_arc3 (311)
#define Pfn_elliptical_arc (312)
#define Pfn_fill_circle3 (313)
#define Pfn_fill_circle (314)
#define Pfn_circular_arc_close3 (315)
#define Pfn_circular_arc_close (316)
#define Pfn_fill_ellipse3 (317)
#define Pfn_fill_ellipse (318)
#define Pfn_elliptical_arc_close3 (319)
#define Pfn_elliptical_arc_close (320)
#define Pfn_set_highl_ind (321)
#define Pfn_set_linetype_adapt (322)
#define Pfn_set_linetype_cont (323)
#define Pfn_set_linetype_offset (324)
#define Pfn_set_linecap (325)

```

```
#define Pfn_set_linejoin (326)
#define Pfn_set_linemitre_limit (327)
#define Pfn_set_edgetype_adapt (328)
#define Pfn_set_edgetype_cont (329)
#define Pfn_set_edgetype_offset (330)
#define Pfn_set_edgcap (331)
#define Pfn_set_edgejoin (332)
#define Pfn_set_edgemitre_limit (333)
#define Pfn_set_highl_method (334)
#define Pfn_set_transparency (335)
#define Pfn_set_back_transparency (336)
#define Pfn_set_alpha_src_sel (337)
#define Pfn_set_alpha_data_sel_ind (338)
#define Pfn_set_active_textures (339)
#define Pfn_set_back_active_textures (340)
#define Pfn_set_texture_perspect_corr (341)
#define Pfn_set_texture_sampling_freq (342)
#define Pfn_set_texture_res_opt_heur (343)
#define Pfn_set_cond_flags (344)
#define Pfn_set_cond_flags_from_tests (345)
#define Pfn_set_line_rep_full (346)
#define Pfn_set_line_rep_mask (347)
#define Pfn_set_marker_rep_mask (348)
#define Pfn_set_text_rep_mask (349)
#define Pfn_set_int_rep_mask (350)
#define Pfn_set_edge_rep_full (351)
#define Pfn_set_edge_rep_mask (352)
#define Pfn_set_ext_pat_rep (353)
#define Pfn_set_pat_rep_mask (354)
#define Pfn_set_texture_rep (355)
#define Pfn_set_texture_rep_mask (356)
#define Pfn_set_texture_param (357)
#define Pfn_set_texture_composition (358)
#define Pfn_set_texture_sampling (359)
#define Pfn_set_texture_binding (360)
#define Pfn_set_highl_rep (361)
#define Pfn_set_transparency_mode (362)
#define Pfn_set_transparency_thresholds (363)
#define Pfn_set_refl_rep_mask (364)
#define Pfn_set_appl_filter (365)
#define Pfn_create_mipmap_texture (366)
#define Pfn_define_linetype (367)
#define Pfn_define_marker_type (368)
#define Pfn_set_view_ref_point3 (369)
#define Pfn_set_view_ref_point (370)
#define Pfn_set_view_plane_norm (371)
#define Pfn_set_view_up_vec3 (372)
#define Pfn_set_view_up_vec (373)
#define Pfn_set_view_win_limits (374)
#define Pfn_set_proj_vp3 (375)
```

```

#define Pfn_set_proj_vp (376)
#define Pfn_set_proj_type (377)
#define Pfn_set_proj_ref_point (378)
#define Pfn_set_view_plane_dist (379)
#define Pfn_set_front_plane_dist (380)
#define Pfn_set_back_plane_dist (381)
#define Pfn_set_xy_clip_indicator (382)
#define Pfn_set_front_clip_indicator (383)
#define Pfn_set_back_clip_indicator (384)
#define Pfn_upd_view_rep (385)
#define Pfn_map_dc_to_wsc (386)
#define Pfn_map_wsc_to_dc (387)
#define Pfn_map_dc_to_wc (388)
#define Pfn_open_di_struct (389)
#define Pfn_close_di_struct (390)
#define Pfn_inst_struct (391)
#define Pfn_cond_exec_struct (392)
#define Pfn_cond_inst_struct (393)
#define Pfn_cond_return (394)
#define Pfn_cond_skip_elements (395)
#define Pfn_cond_skip_to_label (396)
#define Pfn_push_st (397)
#define Pfn_pop_st (398)
#define Pfn_copy_elem_struct (399)
#define Pfn_copy_elem_range_struct (400)
#define Pfn_copy_elems_between_labels_struct (401)
#define Pfn_move_elem (402)
#define Pfn_move_elem_range (403)
#define Pfn_move_elems_between_labels (404)
#define Pfn_set_watch_on_elem_range (405)
#define Pfn_end_watch_on_elem_range (406)
#define Pfn_post_struct_to_grp (407)
#define Pfn_unpost_structs_from_grps (408)
#define Pfn_unpost_all_structs_from_grp (409)
#define Pfn_post_di_struct (410)
#define Pfn_post_di_struct_to_grp (411)
#define Pfn_unpost_di_struct (412)
#define Pfn_renew_di_state (413)
#define Pfn_set_di_mode (414)
#define Pfn_mark_multi_pass_start (415)
#define Pfn_mark_multi_pass_compl (416)
#define Pfn_mark_pass_start (417)
#define Pfn_mark_pass_compl (418)
#define Pfn_ret_num_passes_req (419)
#define Pfn_set_set_pick_filter (420)
#define Pfn_set_composite_pick_filter (421)
#define Pfn_set_di_pick_filter (422)
#define Pfn_set_di_pick_corr_point3 (423)
#define Pfn_set_di_pick_corr_point (424)
#define Pfn_set_pick_mapping_data (425)

```

```
#define Pfn_map_dc_point_to_pick_paths (426)
#define Pfn_define_locator (427)
#define Pfn_define_stroke (428)
#define Pfn_define_valuator (429)
#define Pfn_define_choice (430)
#define Pfn_define_pick (431)
#define Pfn_define_string (432)
#define Pfn_create_set_measure (433)
#define Pfn_define_set (434)
#define Pfn_create_composite_measure (435)
#define Pfn_define_composite (436)
#define Pfn_undefine_locator (437)
#define Pfn_undefine_stroke (438)
#define Pfn_undefine_valuator (439)
#define Pfn_undefine_choice (440)
#define Pfn_undefine_pick (441)
#define Pfn_undefine_string (442)
#define Pfn_destroy_set_measure (443)
#define Pfn_undefine_set (444)
#define Pfn_destroy_composite_measure (445)
#define Pfn_undefine_composite (446)
#define Pfn_init_set3 (447)
#define Pfn_init_set (448)
#define Pfn_init_composite3 (449)
#define Pfn_init_composite (450)
#define Pfn_set_set_mode (451)
#define Pfn_set_composite_mode (452)
#define Pfn_req_set3 (453)
#define Pfn_req_set (454)
#define Pfn_req_composite3 (455)
#define Pfn_req_composite (456)
#define Pfn_sample_set3 (457)
#define Pfn_sample_set (458)
#define Pfn_sample_composite3 (459)
#define Pfn_sample_composite (460)
#define Pfn_get_set3 (461)
#define Pfn_get_set (462)
#define Pfn_get_composite3 (463)
#define Pfn_get_composite (464)
#define Pfn_attach_lid_to_view (465)
#define Pfn_detach_lid_from_view (466)
#define Pfn_attach_lid_to_light_src (467)
#define Pfn_detach_lid_from_light_src (468)
#define Pfn_init_di_pick3 (469)
#define Pfn_init_di_pick (470)
#define Pfn_enable_di_pick (471)
#define Pfn_disable_di_pick (472)
```

```
#define Pfn_trans_di_pick_set (473)
”
```

Page 164

The following text is appended after the definition of PLINE_DASH_DOT:

```
“
#define PLINE_DASH_DOT_DOT (5)
”
```

Page 165 (Page 99 of PHIGS PLUS)

The following text is appended the definition of PCOLR_HLS:

```
“
#define PCOLR_RGBA (5)
#define PCOLR_CIELUVA (6)
#define PCOLR_HSVA (7)
#define PCOLR_HLSA (8)
”
```

Page 166

The following text is appended:

```
“
#define PHATCH_HORIZ (1)
#define PHATCH_VERT (2)
#define PHATCH_POS_SLOPE (3)
#define PHATCH_NEG_SLOPE (4)
#define PHATCH_HORIZ_VERT_CROSS (5)
#define PHATCH_POS_NEG_SLOPE_CROSS (6)

#define PPICK_HIGHL_PRIM (4)
#define PPICK_HIGHL_PRIM_GROUP (5)
#define PPICK_HIGHL_STRUCT_NETWORK (6)

#define PDI_PICK_HIGHL (1)

#define PPICK_TYPE_WS_DEP (1)
#define PPICK_TYPE_PICK_FIRST (2)
#define PPICK_TYPE_PICK_LAST (3)
#define PPICK_TYPE_PICK_CLOSEST (4)

#define PTARG_MANIP_AUTO (1)
#define PTARG_MANIP_MANUAL (2)

#define PSET_REND_TARG (1)
#define PSET_DISP_TARG (2)
#define PCLEAR_TARG (3)
#define PCOPY_TARG (4)
”
```

```
#define PCLEAR_TRAV_RES (0)
#define PCOPY_TRAV_RES (1)

#define PTRAV_RES_Z_BUF (1)
#define PTRAV_RES_PAINT_BUF (2)

#define PVUM_APPLY_ALL (1)
#define PVUM_APPLY_ORIENTATION (2)

#define PVWA_ROT_ABOUT_U_VRC_AXIS (1)
#define PVWA_ROT_ABOUT_V_VRC_AXIS (2)
#define PVWA_ROT_ABOUT_N_VRC_AXIS (3)
#define PVWA_TRANS_U_VRC_AXIS_CLIP (4)
#define PVWA_TRANS_U_VRC_AXIS_NOCLIP (5)
#define PVWA_TRANS_V_VRC_AXIS_CLIP (6)
#define PVWA_TRANS_V_VRC_AXIS_NOCLIP (7)
#define PVWA_TRANS_N_VRC_AXIS (8)
#define PVWA_SCALE_WIN_UNIFORMLY (9)
#define PVWA_SCALE_VP_UNIFORMLY (10)
#define PVWA_SCALE_WIN_WIDTH (11)
#define PVWA_SCALE_VP_WIDTH (12)
#define PVWA_SCALE_WIN_HEIGHT (13)
#define PVWA_SCALE_VP_HEIGHT (14)
#define PVWA_TRANS_FRONT_CLIP_PLANE (15)
#define PVWA_TRANS_BACK_CLIP_PLANE (16)
#define PVWA_ROT_AROUND_VRP_ALONG_CYL_LAT (17)
#define PVWA_TRANS_EYE_FROM_VRP_OUT (18)
#define PVWA_TRANS_EYE_FROM_VRP_UP (19)
#define PVWA_ROT_EYE_FROM_VRP_UP (20)
#define PVWA_CHG_EYE_POS_WRT_VRP (21)
#define PVWA_CHG_VRP_POS_ROT_UP_WRT_PRP (22)
#define PVWA_CHG_VRP_POS_ROT_RL_WRT_PRP (23)

#define PMTT_MEASURE_CHANGE (1)
#define PMTT_EVENT_WITH_DISCARD (2)
#define PMTT_EVENT_WITH_PROPAGATION (3)

#define PBACKGM_COLOUR_TABLE_0 (1)
#define PBACKGM_COLOUR_INDEX (2)
#define PBACKGM_COLOUR (3)
#define PBACKGM_IMAGE_RESOURCE (4)

#define PIMGSM_UNCOMP_COLR_INDEX_ARRAY (1)
#define PIMGSM_UNCOMP_COLR_ARRAY (2)
#define PIMGSM_WINDOW_SYS_BITMAP (3)
#define PIMGSM_VIDEO_SIGNAL_CHAN_ID (4)
#define PIMGSM_LUMINANCE (5)
#define PIMGSM_LUMINANCE_ALPHA (6)
#define PIMGSM_MIPMAP_COLRS (7)
#define PIMGSM_MIPMAP_LUMINANCE (8)
#define PIMGSM_MIPMAP_LUMINANCE_ALPHA (9)

#define PPATT_COLOUR_INDEX (1)
#define PPATT_COLOUR (2)
```

```
#define PPATT_IMAGE_RESOURCE (3)

#define PSHAPE_POLYLINE (1)
#define PSHAPE_FILL_AREA (2)
#define PSHAPE_CONVEX_FILL_AREA (3)

#define PTEST_ALWAYS_FAIL (0)
#define PTEST_ALWAYS_SUCCEED (1)
#define PTEST_EXTENT3 (2)
#define PTEST_EXTENT (3)
#define PTEST_BOUNDS3 (4)
#define PTEST_BOUNDS (5)
#define PTEST_NAMESET (6)
#define PTEST_APPL_INTEGER (7)
#define PTEST_APPL_REAL (8)

#define PFILTER_TYPE_INVIS (1)
#define PFILTER_TYPE_HIGHL (2)
#define PFILTER_TYPE_PICK (3)
#define PFILTER_TYPE_APPL (4)

#define PTEXTRSF_PER_PIXEL (1)
#define PTEXTRSF_INTERP_DEP (2)

#define PTEXTR_OPT_NO_HINT (1)
#define PTEXTR_OPT_SPEED (2)
#define PTEXTR_OPT_SPACE (3)

#define PALPHASRC_TRANSPARENCY (1)
#define PALPHASRC_COLR_ASPECT (2)
#define PALPHASRC_FACET_COLR (3)
#define PALPHASRC_FACET_DATA (4)
#define PALPHASRC_VERTEX_COLR (5)
#define PALPHASRC_VERTEX_DATA (6)

#define PCOORDSRC_VERTEX_COORD_MC (1)
#define PCOORDSRC_VERTEX_COORD_WC (2)
#define PCOORDSRC_VERTEX_NORMAL_MC (3)
#define PCOORDSRC_VERTEX_NORMAL_WC (4)
#define PCOORDSRC_NURB_SURF_UV (5)
#define PCOORDSRC_DATA (6)
#define PCOORDSRC_REFL_SPHERE_VRC (7)
#define PCOORDSRC_REFL_SPHERE_WC (8)

#define PGCS_GAMMA_ONE (1)
#define PGCS_GAMMA_RED (1)
#define PGCS_GAMMA_TWO (2)
#define PGCS_GAMMA_GREEN (2)
#define PGCS_GAMMA_THREE (3)
#define PGCS_GAMMA_BLUE (3)

#define PCOMPOS_REPLACE (1)
#define PCOMPOS_MODULATE (2)
#define PCOMPOS_BLEND_ENVIRONMENT_COLR (3)
```

```

#define PCOMPOS_DECAL (4)
#define PCOMPOS_DECAL_BACKGROUND (5)

#define PMINM_SINGLE_BASE (1)
#define PMINM_LINEAR_BASE (2)
#define PMINM_SINGLE_IN_MIPMAP (3)
#define PMINM_LINEAR_IN_MIPMAP (4)
#define PMINM_SINGLE_BETWEEN_MIPMAPS (5)
#define PMINM_LINEAR_BETWEEN_MIPMAPS (6)

#define PMAGM_SINGLE_BASE (1)
#define PMAGM_LINEAR_BASE (2)
#define PMAGM_SINGLE_IN_MIPMAP (3)
#define PMAGM_LINEAR_IN_MIPMAP (4)
#define PMAGM_SINGLE_BETWEEN_MIPMAPS (5)
#define PMAGM_LINEAR_BETWEEN_MIPMAPS (6)

#define PBOUND_COND_CLAMP_EXPLICIT_METHOD (1)
#define PBOUND_COND_CLAMP_BORDER (2)
#define PBOUND_COND_WRAP (3)
#define PBOUND_COND_MIRROR (4)

#define PBOUND_CLAMP_DISCONTINUE (1)
#define PBOUND_CLAMP_COLOR (2)

#define PRENDORDER_PRELIGHT (1)
#define PRENDORDER_POST_LIGHT (2)

#define PTRANSPMODE_NONE (1)
#define PTRANSPMODE_SCREEN_DOOR (2)
#define PTRANSPMODE_ALPHA_BLEND (3)
#define PTRANSPMODE_TWO_PASS (4)
#define PTRANSPMODE_MULTIPASS (5)

#define PLTA_ADJ_LT_COLOR_COMP_1 (1)
#define PLTA_ADJ_LT_COLOR_COMP_2 (2)
#define PLTA_ADJ_LT_COLOR_COMP_3 (3)
#define PLTA_ADJ_BRIGHT (4)
#define PLTA_ROT_AROUND_X_DIR_VEC (5)
#define PLTA_ROT_AROUND_Y_DIR_VEC (6)
#define PLTA_ROT_AROUND_Z_DIR_VEC (7)
#define PLTA_TRANS_X_LT_POS (8)
#define PLTA_TRANS_Y_LT_POS (9)
#define PLTA_TRANS_Z_LT_POS (10)
#define PLTA_ADJ_CONCENTRATION_EXP (11)
#define PLTA_ADJ_LT_SPREAD_ANGLE (12)

```

Page 169

A.2 Types in compilation order

The following text replaces the definition of `Pint_style`:

```

“
typedef enum {
    /* start of PHIGS enumerations */
    PSTYLE_HOLLOW,
    PSTYLE_SOLID,
    PSTYLE_HATCH,
    PSTYLE_PATTERN,
    PSTYLE_EMPTY,
    /* end of PHIGS enmerations */
    /* start of Full PHIGS enumerations */
    PSTYLE_TEXTURE
    /* end of Full PHIGS enumerations */

} Pint_style;”

```

The following text is merged into the definition of Paspect:

```

“
typedef enum {
    /* start of PHIGS enumerations */
    ...,
    /* end of PHIGS enumerations */
    /* start of PHIGS PLUS enumerations */
    ...,
    /* end of PHIGS PLUS enumerations */
    /* start of Full PHIGS enumerations */
    PASPECT_HIGHL_METHOD
    /* end of Full PHIGS enumerations */

} Paspect;”

```

Page 171

The following text replaces the text of the definition of popen_struct_status:

```

“
typedef enum {
    /* start of PHIGS enumerations */
    PSTRUCT_NONE,
    PSTRUCT_OPEN,
    /* end of PHIGS enumerations */
    /* start of Full PHIGS enumerations */
    PSTRUCT_DI
    /* end of Full PHIGS enumerations */

} Popen_struct_status;”

```

The following text replaces the text of the definition of `pin_class`:

```
“
typedef enum {
    /* start of Basic PHIGS enumerations */
    PIN_NONE,
    PIN_LOC,
    PIN_STROKE,
    PIN_VAL,
    PIN_CHOICE,
    PIN_PICK,
    PIN_STRING,
    /* end of Basic PHIGS enumerations */
    /* start of Full PHIGS enumerations */
    PIN_SET,
    PIN_COMPOSITE
    /* end of Full PHIGS enumerations */

} Pin_class;”
```

Page 174

The following text is merged into the text of the definition of `pelem_type`:

```
“
typedef enum {
    /* start of PHIGS enumerations */
    ...,
    /* end of PHIGS enumerations */
    /* start of PHIGS PLUS enumerations */
    ...,
    /* end of PHIGS PLUS enumerations */
    /* start of Full PHIGS enumerations */
    PELEM_APPL_INT,
    PELEM_APPL_REAL,
    PELEM_CIRCLE3,
    PELEM_CIRCLE,
    PELEM_CIRCULAR_ARC3,
    PELEM_CIRCULAR_ARC,
    PELEM_ELLIPSE3,
    PELEM_ELLIPSE,
    PELEM_ELLIPTICAL_ARC3,
    PELEM_ELLIPTICAL_ARC,
    PELEM_FILL_CIRCLE3,
    PELEM_FILL_CIRCLE,
    PELEM_CIRCULAR_ARC_CLOSE3,
    PELEM_CIRCULAR_ARC_CLOSE,
    PELEM_FILL_ELLIPSE3,
    PELEM_FILL_ELLIPSE,
    PELEM_ELLIPTICAL_ARC_CLOSE3,
```

```

PELEM_ELLIPTICAL_ARC_CLOSE,
PELEM_HIGHL_IND,
PELEM_LINETYPE_ADAPT,
PELEM_LINETYPE_CONT,
PELEM_LINETYPE_OFFSET,
PELEM_LINECAP,
PELEM_LINEJOIN,
PELEM_LINEMITRE_LIMIT,
PELEM_EDGETYPE_ADAPT,
PELEM_EDGETYPE_CONT,
PELEM_EDGETYPE_OFFSET,
PELEM_EDGECAP,
PELEM_EDGEJOIN,
PELEM_EDGEMITRE_LIMIT,
PELEM_HIGHL_METHOD,
PELEM_TRANSPARENCY,
PELEM_BACK_TRANSPARENCY,
PELEM_ALPHA_SRC_SEL,
PELEM_ALPHA_DATA_SEL_IND,
PELEM_ACTIVE_TEXTURES,
PELEM_BACK_ACTIVE_TEXTURES,
PELEM_TEXTURE_PERSPECT_CORR,
PELEM_TEXTURE_SAMPLING_FREQ,
PELEM_TEXTURE_RES_OPT_HEUR,
PELEM_SET_COND_FLAGS,
PELEM_SET_COND_FLAGS_FROM_TESTS,
PELEM_INST_STRUCT,
PELEM_COND_EXEC_STRUCT,
PELEM_COND_INST_STRUCT,
PELEM_COND_RETURN,
PELEM_COND_SKIP_ELEMS,
PELEM_COND_SKIP_TO_LABEL,
PELEM_PUSH_ST,
PELEM_POP_ST,
/* end of Full PHIGS enumerations */

```

```

} Pelem_type;”

```

Page 175

The following text is inserted after the definition of Prgb:

```

“
typedef struct {
    Pfloat    cieluv_x;        /* x coefficient          */
    Pfloat    cieluv_y;        /* y coefficient          */
    Pfloat    cieluv_y_lum;    /* y luminance           */
    Pfloat    alpha;           /* alpha                  */
} Pcieluva;

```

```

typedef struct {
    Pfloat    hue;           /* hue                      */
    Pfloat    lightness;     /* lightness                */
    Pfloat    saturation;    /* saturation                */
    Pfloat    alpha;         /* alpha                    */
} Phlsa;

typedef struct {
    Pfloat    hue;           /* hue                      */
    Pfloat    saturation;    /* saturation                */
    Pfloat    value;         /* value                    */
    Pfloat    alpha;         /* alpha                    */
} Phsva;

typedef struct {
    Pfloat    red;           /* red intensity            */
    Pfloat    green;         /* green intensity          */
    Pfloat    blue;          /* blue intensity           */
    Pfloat    alpha;         /* alpha                    */
} Prgba;”

```

The following text replaces the definition of Pcolr_rep:

```

“
typedef union {
    /* start of Basic PHIGS union members */
    Prgb    rgb;           /* RGB colour specification */
    Pcielv  cielv;         /* CIE L*u*v* colour specification */
    Phls    hls;           /* HLS colour specification */
    Phsv    hsv;           /* HSV colour specification */
    /* end of Basic PHIGS union members */
    /* start of Full PHIGS union members */
    Prgba   rgba;          /* RGB specification with alpha */
    Pcielva cielva;        /* CIE L*u*v* colour specfication with alpha */
    Phlsa   hlsa;          /* HLS colour specficaition with alpha */
    Phsva   hsva;          /* HSV colour specification with alpha */
    /* end of Full PHIGS union members */
    Pdata   unsupp;        /* colour in an unsupported colour model */
    int      impl_dep;     /* implementation defined */
} Pcolr_rep;”

```

Page 187 through 193

The following type definitions replace the corresponding type definitions:

“

```
typedef struct {
    union Pchoice_pets {
        struct Pchoice_pet_other {
            Pint        unused;
        } pet_other; /* When no echo-specific data is required */
        struct Pchoice_pet_r1{
            Pint        imp_dep;          /* impl. dependent */
        } pet_r1; /* For PET 1 */
        struct Pchoice_pet_r2 {
            Pint        num_prompts;      /* number of prompts */
            Ppr_switch  *prompts;         /* array of prompts */
            Pint        imp_dep;          /* impl. defined */
        } pet_r2; /* For PET 2 */
        struct Pchoice_pet_r3 {
            Pint        num_strings;      /* number of choice strings */
            char        **strings;        /* array of choice strings */
            Pint        imp_dep;          /* impl. defined */
        } pet_r3; /* For PET 3 */
        struct Pchoice_pet_r4 {
            Pint        num_strings;      /* number of alternatives */
            char        **strings;        /* array of strings */
            Pint        imp_dep;          /* impl. defined */
        } pet_r4; /* For PET 4 */
        struct Pchoice_pet_r5 {
            Pint        struct_id;        /* structure identifier */
            Pint        num_pick_ids;     /* number of alternatives */
            Pint        *pick_ids;        /* array of pick identifiers */
            Pint        imp_dep;          /* impl. defined */
        } pet_r5; /* For PET 5 */
        Pint        imp_dep;          /* data for impl. defined pets */
    } pets;
    union Pchoice_measure_data {
        struct Pchoice_meas_other {
            Pint        unused;
        } meas_other; /* When no measure-specific data is required */
        Pint        imp_dep; /* data for impl. defined measure processes */
    } measure_data;
};
```

```

union Pchoice_trigger_data {
    struct Pchoice_trig_other {
        Pint        unused;
    } trig_other; /* When no trigger-specific data is required */
    Pint        imp_dep; /* data for impl. defined trigger processes */
} trigger_data;

union Pchoice_ack_data {
    struct Pchoice_ack_other {
        Pint        unused;
    } ack_other; /* When no ack.-specific data is required */
    Pint        imp_dep; /* data for impl. defined ack. processes */
} acknowledgement_data;

} Pchoice_data;

typedef struct {
    union Pchoice3_pets {
        struct Pchoice3_pet_other {
            Pint        unused;
        } pet_other; /* When no echo-specific data is required */
        struct Pchoice3_pet_r1 {
            Pint        imp_dep; /* impl. dependent */
        } pet_r1; /* For PET 1 */
        struct Pchoice3_pet_r2 {
            Pint        num_prompts; /* number of prompts */
            Ppr_switch*prompts; /* array of prompts */
            Pint        imp_dep; /* impl. defined */
        } pet_r2; /* For PET 2 */
        struct Pchoice3_pet_r3 {
            Pint        num_strings; /* number of choice strings */
            char        **strings; /* array of choice strings */
            Pint        imp_dep; /* impl. defined */
        } pet_r3; /* For PET 3 */
        struct Pchoice3_pet_r4 {
            Pint        num_strings; /* number of alternatives */
            char        **strings; /* array of strings */
            Pint        imp_dep; /* impl. defined */
        } pet_r4; /* For PET 4 */
        struct Pchoice3_pet_r5 {
            Pint        struct_id; /* structure identifier */
            Pint        num_pick_ids; /* number of alternatives */
            Pint        *pick_ids; /* array of pick identifiers */
            Pint        imp_dep; /* impl. defined */
        } pet_r5; /* For PET 5 */
    }
};

```

```

    Pint        imp_dep; /* data for impl. defined pets */
} pets;
union Pchoice3_measure_data {
    struct Pchoice_meas_other {
        Pint        unused;
    } meas_other; /* When no measure-specific data is required */
    Pint        imp_dep; /* data for impl. defined measure processes */
} measure_data;
union Pchoice3_trigger_data {
    struct Pchoice3_trig_other {
        Pint        unused;
    } trig_other; /* When no trigger-specific data is required */
    Pint        imp_dep; /* data for impl. defined trigger processes */
} trigger_data;
union Pchoice3_ack_data {
    struct Pchoice3_ack_other {
        Pint        unused;
    } ack_other; /* When no ack.-specific data is required */
    Pint        imp_dep; /* data for impl. defined ack. processes */
} acknowledgement_data;
} Pchoice_data3;

typedef struct {
    union Ploc_pets {
        struct Ploc_pet_other {
            Pint        unused;
        } pet_other; /* When no echo-specific data is required */
        struct Ploc_pet_r1 {
            . . . /* impl. dependent */
        } pet_r1; /* Supports standard PET 1 */
        struct Ploc_pet_r2 {
            . . . /* impl. dependent */
        } pet_r2; /* Supports standard PET 2 */
        struct Ploc_pet_r3 {
            . . . /* impl. dependent */
        } pet_r3; /* Supports standard PET 3 */
        struct Ploc_pet_r4 {
            Pline_attrline_attrs; /* polyline attributes */
            Pint        imp_dep; /* impl. dependent */
        } pet_r4; /* Supports standard PET 4 */
    };
};

```

```

struct Ploc_pet_r5 {
    Pline_fill_ctrl_flagline_fill_ctrl_flag; /*ctrl. flag*/
    union Ploc_attrs {
        Pline_attrs line_attrs; /* polyline attributes*/
        Pint_attrs int_attrs; /* interior attributes*/
        struct Ploc_fill_set {
            Pint_attrs int_attrs; /* interior attributes */
            Pedge_attrs edge_attrs; /* edge attributes */
        } fill_set;
    } attrs;
    Pint imp_dep; /* data for impl. defined PET's */
} pet_r5; /* Supports standard PET 5 */

struct Ploc_pet_r6 {
    . . . /* impl. dependent */
} pet_r6; /* Supports standard PET 6 */
Pint imp_dep; /* data for impl. defined PET's */
} pets;

union Ploc_measure_data {
    struct Ploc_meas_other {
        Pint unused;
    } meas_other; /* When no measure-specific data is required */
    Pint imp_dep; /* data for impl. defined measure processes */
} measure_data;

union Ploc_trigger_data{
    struct Ploc_trig_other {
        Pint unused;
    } trig_other; /* When no trigger-specific data is required */
    Pint imp_dep; /* data for impl. defined trigger processes */
} trigger_data;

union Ploc_ack_data {
    struct Ploc_ack_other {
        Pint unused;
    } ack_other; /* When no ack.-specific data is required */
    Pint imp_dep; /* data for impl. defined ack. processes */
} acknowledgement_data;
} Ploc_data;

typedef struct {
    union Ploc3_pets {
        struct Ploc3_pet_other {
            Pint unused;
        } pet_other; /* When no echo-specific data is required */
    }
}

```

```

struct Ploc3_pet_r1 {
    . . . /* impl. dependent */
} pet_r1; /* Supports standard PET 1 */
struct Ploc3_pet_r2 {
    . . . /* impl. dependent */
} pet_r2; /* Supports standard PET 2 */
struct Ploc3_pet_r3 {
    . . . /* impl. dependent */
} pet_r3; /* Supports standard PET 3 */
struct Ploc3_pet_r4 {
    Pline_attrs line_attrs; /* polyline attributes */
    Pint imp_dep; /* impl. dependent */
} pet_r4; /* Supports standard PET 4 */
struct Ploc3_pet_r5 {
    Pline_fill_ctrl_flag line_fill_ctrl_flag; /* ctrl. flag */
    union Ploc3_attrs {
        Pline_attrs line_attrs; /* polyline attributes */
        Pint_attrs int_attrs; /* interior attributes */
        struct Ploc3_fill_set {
            Pint_attrs int_attrs; /* interior attributes */
            Pedge_attrs edge_attrs; /* edge attributes */
        } fill_set;
    } attrs;
    Pint imp_dep; /* data for impl. defined PET's */
} pet_r5; /* Supports standard PET 5 */
struct Ploc3_pet_r6 {
    . . . /* impl. dependent */
} pet_r6; /* Supports standard PET 6 */
Pint imp_dep; /* data for impl. defined PET's */
} pets;

union Ploc3_measure_data {
    struct Ploc3_meas_other {
        Pint unused;
    } meas_other; /* When no measure-specific data is required */
    Pint imp_dep; /* data for impl. defined measure processes */
} measure_data;

union Ploc3_trigger_data {
    struct Ploc3_trig_other {
        Pint unused;
    } trig_other; /* When no trigger-specific data is required */
    Pint imp_dep; /* data for impl. defined trigger processes */
} trigger_data;

```

```

union Ploc3_ack_data {
    struct Ploc3_ack_other {
        Pint        unused;
    } ack_other; /* When no ack.-specific data is required */
    Pint        imp_dep; /* data for impl. defined ack. processes */
} acknowledgement_data;

} Ploc_data3;

typedef struct {
    union Ppick_pets {
        struct Ppick_pet_other {
            Pint        unused;
        } pet_other; /* When no echo-specific data is required */
        struct Ppick_pet_r1 {
            Pint        imp_dep; /* impl. dependent */
        } pet_r1; /* For PET 1 */
        Pint        imp_dep; /* data for impl. defined pets */
        struct Ppick_pet_r2 {
            ... /* implementation dependent */
        } pet_r2; /* For PET 2 */
        struct Ppick_pet_r3 {
            ... /* implementation dependent */
        } pet_r3; /* For PET 3 */
        struct Ppick_pet_r4 {
            Pint        highl_ind; /* highlighting index */
            Pint        imp_dep; /* impl. dependent */
        } pet_r4; /* For PET 4 */
        struct Ppick_pet_r5 {
            Pint        highl_ind; /* highlighting index */
            Pint        imp_dep; /* impl. dependent */
        } pet_r5; /* For PET 5 */
        struct Ppick_pet_r6 {
            Pint        highl_ind; /* highlighting index */
            Pint        imp_dep; /* impl. dependent */
        } pet_r6; /* For PET 6 */
        Pint        imp_dep; /* implementation defined PET's */
    } pets;
    union Ppick_measure_data {
        struct Ppick_meas_other {
            Pint        unused;
        } meas_other; /* When no measure-specific data is required */
        Pint        imp_dep; /* data for impl. defined measure processes */
    } measure_data;
}

```

```

union Ppick_trigger_data {
    struct Ppick_trig_other {
        Pint        unused;
    } trig_other; /* When no trigger-specific data is required */
    Pint        imp_dep; /* data for impl. defined pick processes */
} trigger_data;

union Ppick_ack_data {
    struct Ppick_ack_other {
        Pint        unused;
    } ack_other; /* When no ack.-specific data is required */
    Pint        imp_dep; /* data for impl. defined ack. processes */
} acknowledgement_data;

} Ppick_data;

typedef struct {
    union Ppick3_pets {
        struct Ppick3_pet_other {
            Pint        unused;
        } pet_other; /* When no echo-specific data is required */
        struct Ppick3_pet_r1 {
            Pint        imp_dep; /* impl. dependent */
        } pet_r1; /* For PET 1 */
        struct Ppick3_pet_r2 {
            ... /* implementation dependent */
        } pet_r2; /* For PET 2 */
        struct Ppick3_pet_r3 {
            ... /* implementation dependent */
        } pet_r3; /* For PET 3 */
        struct Ppick3_pet_r4 {
            Pint        highl_ind; /* highlighting index */
            Pint        imp_dep; /* impl. dependent */
        } pet_r4; /* For PET 4 */
        struct Ppick3_pet_r5 {
            Pint        highl_ind; /* highlighting index */
            Pint        imp_dep; /* impl. dependent */
        } pet_r5; /* For PET 5 */
        struct Ppick3_pet_r6 {
            Pint        highl_ind; /* highlighting index */
            Pint        imp_dep; /* impl. dependent */
        } pet_r6;
        Pint        imp_dep; /* data for impl. defined pets */
    } pets; /* For PET 6 */
}

```

```

union Ppick3_measure_data {
    struct Ppick3_meas_other {
        Pint        unused;
    } meas_other; /* When no measure-specific data is required */
    Pint        imp_dep; /* data for impl. defined measure processes */
} measure_data;

union Ppick3_trigger_data {
    struct Ppick3_trig_other {
        Pint        unused;
    } trig_other; /* When no trigger-specific data is required */
    Pint        imp_dep; /* data for impl. defined pick processes */
} trigger_data;

union Ppick3_ack_data {
    struct Ppick3_ack_other {
        Pint        unused;
    } ack_other; /* When no ack.-specific data is required */
    Pint        imp_dep; /* data for impl. defined ack. processes */
} acknowledgement_data;
} Ppick_data3;

typedef struct {
    Pint        in_buf_size; /* input buffer size */
    Pint        init_pos; /* initial editing position */
    union Pstring_pets {
        struct Pstring_pet_other {
            Pint        unused;
        } pet_other; /* When no echo-specific data is required */
        struct Pstring_pet_r1 {
            Pint        imp_dep; /* impl. dependent */
        } pet_r1; /* For PET 1 */
        Pint        imp_dep; /* data for impl. defined pets */
    } pets;
    union Pstring_measure_data {
        struct Pstring_meas_other {
            Pint        unused;
        } meas_other; /* When no measure-specific data is required */
        Pint        imp_dep; /* data for impl. defined measure processes */
    } measure_data;
}

```

```

union Pstring_trigger_data {
    struct Pstring_trig_other {
        Pint        unused;
    } trig_other; /* When no trigger-specific data is required */
    Pint        imp_dep; /* data for impl. defined trigger processes */
} trigger_data;

union Pstring_ack_data {
    struct Pstring_ack_other {
        Pint        unused;
    } ack_other; /* When no ack.-specific data is required */
    Pint        imp_dep; /* data for impl. defined ack. processes */
} acknowledgement_data;
} Pstring_data;

typedef struct {
    Pint        in_buf_size; /* input buffer size */
    Pint        init_pos; /* initial editing position */
    union Pstring3_pets {
        struct Pstring_pet_other {
            Pint        unused;
        } pet_other; /* When no echo-specific data is required */
        struct Pstring3_pet_r1 {
            Pint        imp_dep; /* impl. dependent */
        } pet_r1; /* For PET 1 */
        Pint        imp_dep; /* data for impl. defined pets */
    } pets;
    union Pstring3_measure_data {
        struct Pstring3_meas_other {
            Pint        unused;
        } meas_other; /* When no measure-specific data is required */
        Pint        imp_dep; /* data for impl. defined measure processes */
    } measure_data;
    union Pstring3_trigger_data {
        struct Pstring3_trig_other {
            Pint        unused;
        } trig_other; /* When no trigger-specific data is required */
        Pint        imp_dep; /* data for impl. defined trigger processes */
    } trigger_data;
}

```

```

union Pstring3_ack_data {
    struct Pstring3_ack_other {
        Pint        unused;
    } ack_other; /* When no ack.-specific data is required */
    Pint        imp_dep; /* data for impl. defined ack. processes */
} acknowledgement_data;

} Pstring_data3;

typedef struct {
    Pint        buffer_size; /* input buffer size */
    Pint        init_pos;    /* initial editing position */
    Pfloat      x_interval;  /* x trigger interval */
    Pfloat      y_interval;  /* y trigger interval */
    Pfloat      time_interval; /* time trigger interval */
    union {
        struct Pstroke_pet_other {
            Pint        unused;
        } pet_other; /* When no echo-specific data is required */
        struct Pstroke_pet_r1 {
            Pint        imp_dep; /* impl. dependent */
        } pet_r1; /* For std PET 1 */
        struct Pstroke_pet_r2 {
            Pint        imp_dep; /* impl. dependent */
        } pet_r2; /* For std PET 2 */
        struct Pstroke_pet_r3 {
            Pmarker_attrs marker_attrs; /* marker attributes */
            Pint        imp_dep; /* impl. dependent */
        } pet_r3; /* For std PET 3 */
        struct Pstroke_pet_r4 {
            Pline_attrs line_attrs; /* line attributes */
            Pint        imp_dep; /* impl. dependent */
        } pet_r4; /* For std PET 4 */
        Pint        imp_dep; /* data for impl. defined PET's */
    } pets;
    union Pstroke_measure_data {
        struct Pstroke_meas_other {
            Pint        unused;
        } meas_other; /* When no measure-specific data is required */
        Pint        imp_dep; /* data for impl. defined measure processes */
    } measure_data;
}

```

```

union Pstroke_trigger_data {
    struct Pstroke_trig_other {
        Pint        unused;
    } trig_other; /* When no trigger-specific data is required */
    Pint        imp_dep; /* data for impl. defined trigger processes */
} trigger_data;

union Pstroke_ack_data {
    struct Pstroke_ack_other {
        Pint        unused;
    } ack_other; /* When no ack.-specific data is required */
    Pint        imp_dep; /* data for impl. defined ack. processes */
} acknowledgement_data;

} Pstroke_data;

typedef struct {
    Pint            in_buf_size; /* input buffer size */
    Pint            init_pos; /* initial editing position */
    Pfloat          x_interval; /* x trigger interval */
    Pfloat          y_interval; /* y trigger interval */
    Pfloat          z_interval; /* z trigger interval */
    Pfloat          time_interval; /* time trigger interval */
    union Pstroke3_pets {
        struct Pstroke3_pet_other {
            Pint        unused;
        } pet_other; /* When no echo-specific data is required */
        struct Pstroke3_pet_r1 {
            Pint        imp_dep; /* impl. dependent */
        } pet_r1; /* For std PET 1 */
        struct Pstroke3_pet_r2 {
            Pint        imp_dep; /* impl. dependent */
        } pet_r2; /* For std PET 2 */
        struct Pstroke3_pet_r3 {
            Pmarker_attrs marker_attrs; /* marker attributes */
            Pint        imp_dep; /* impl. dependent */
        } pet_r3; /* For std PET 3 */
        struct Pstroke3_pet_r4 {
            Pline_attrs line_attrs; /* line attributes */
            Pint        imp_dep; /* impl. dependent */
        } pet_r4; /* For std PET 4 */
        Pint        imp_dep; /* data for impl. defined PET's */
    } pets;
}

```

```

union Pstroke3_measure_data {
    struct Pstroke3_meas_other {
        Pint        unused;
    } meas_other; /* When no measure-specific data is required */
    Pint        imp_dep; /* data for impl. defined measure processes */
} measure_data;

union Pstroke3_trigger_data {
    struct Pstroke3_trig_other {
        Pint        unused;
    } trig_other; /* When no trigger-specific data is required */
    Pint        imp_dep; /* data for impl. defined trigger processes */
} trigger_data;

union Pstroke3_ack_data {
    struct Pstroke3_ack_other {
        Pint        unused;
    } ack_other; /* When no ack.-specific data is required */
    Pint        imp_dep; /* data for impl. defined ack. processes */
} acknowledgement_data;
} Pstroke_data3;

typedef struct {
    Pfloat        low; /* Low value of valuator range */
    Pfloat        high; /* High value of valuator range */
    union Pval_pets {
        struct Pval_pet_other {
            Pint        unused;
        } pet_other; /* When no echo-specific data is required */
        Pint        imp_dep; /* data for impl. defined pets */
    } pets;
    union Pval_measure_data {
        struct Pval_measure_other {
            Pint        unused;
        } meas_other; /* When no measure-specific data is required */
        Pint        imp_dep; /* data for impl. defined measure processes */
    } measure_data;
    union Pval_trigger_data {
        struct Pval_trig_other {
            Pint        unused;
        } trig_other; /* When no trigger-specific data is required */
        Pint        imp_dep; /* data for impl. defined trigger processes */
    } trigger_data;
}

```

```

union Pval_ack_data {
    struct Pval_ack_other {
        Pint      unused;
    } ack_other; /* When no ack.-specific data is required */
    Pint      imp_dep; /* data for impl. defined ack. processes */
} acknowledgement_data;
} Pval_data;

typedef struct {
    Pfloat      low;          /* Low value of valuator range */
    Pfloat      high;         /* High value of valuator range */
    union Pval3_pets {
        struct Pval3_pet_other {
            Pint      unused;
        } pet_other; /* When no echo-specific data is required */
        Pint      imp_dep; /* data for impl. defined pets */
    } pets;
    union Pval3_measure_data {
        struct Pval3_measure_other {
            Pint      unused;
        } meas_other; /* When no measure-specific data is required */
        Pint      imp_dep; /* data for impl. defined measure processes */
    } measure_data;
    union Pval3_trigger_data {
        struct Pval3_trig_other {
            Pint      unused;
        } trig_other; /* When no trigger-specific data is required */
        Pint      imp_dep; /* data for impl. defined trigger processes */
    } trigger_data;
    union Pval3_ack_data {
        struct Pval3_ack_other {
            Pint      unused;
        } ack_other; /* When no ack.-specific data is required */
        Pint      imp_dep; /* data for impl. defined ack. processes */
    } acknowledgement_data;
} Pval_data3;”

```

Page 194 (Page 105 Amendment 1)

The following text replaces the definition of Pcolr_rep_ptr:

```

“
typedef union {
    /* start of PHIGS PLUS union members */
    Prgb      *rgb;          /* pointer to RGB colour values */
    Pcielvuv  *cielvuv;      /* pointer to CIELUV pointer values */
    Phls      *hls;          /* pointer to HLS pointer values */
    Phsv      *hsv;          /* pointer to HSV pointer values */
    /* end of PHIGS PLUS union members */
    /* start of Full PHIGS union members */
    Prgba     *rgba;         /* pointer to RGBA colour values */
    Pcieluva  *cieluva;      /* pointer to CIELUVA pointer values */
    Phlsa     *hlsa;         /* pointer to HLSA pointer values */
    Phsva     *hsva;         /* pointer to HSVA pointer values */
    /* end of Full PHIGS union members */
    ...                  /* implementation defined */

} Pcolr_rep_ptr;”

```

Page 194 (Page 118 Amendment 1)

The following text replaces the definition of Ppat_rep_plus:

```

“
typedef struct {
    Pint      colr_type;      /* colour type                */
    Pcolrv_array colrs;      /* colour array                */
} Pgcolr_array;

typedef Pgcolr_array Ppat_rep_plus;

typedef struct {
    Pint      colr_type;      /* colour type                */
    Pint      num_arrays;     /* number of arrays in set    */
    Pcolrv_array *colrs;     /* set of colour arrays       */
} Pgcolr_array_set;
”

```

Page 194 (Page 122 Amendment 1)

The following text is inserted after the definition of Pws_st_tables_plus:

```

“
typedef struct {
    Pdyn_mod      posting_status; /* posting status modification */
} Pdyns_post_grps;
”

```

```

typedef enum {
    PACCESS_REFERENCED = 0,
    PACCESS_COPIED = 1
} Paccess_flag;

typedef enum {
    P_ACK_ACCEPTANCE = 0,
    P_ACK_NONACCEPTANCE = 1
} Packnowledgement_type;

typedef struct {
    Pack_type      type;
    Pint           process_id;
} Pack_process;

typedef struct {
    Pint           count;
    Pack_process   *procs;
} Pack_process_list;

typedef enum {
    PNOTASSOCIATED = 0,
    PASSOCIATED = 1
} Passoc_flag;

typedef struct {
    Pint           max_simul_trig, /* max simul. trigger procs */
    Pint           max_simul_echo, /* max simul. echo procs */
    Pint           max_simul_ack,  /* max simul. acknowledgement procs */
    Pint_list      meas_proc_ids,  /* available measure process ids */
    Pint_list      trig_proc_ids,  /* available trigger process ids */
    Pint_list      echo_proc_ids,  /* available echo process ids */
    Pint_list      ack_proc_ids,   /* available acknowledgement
    /* process ids */
} Patomic_lid_facs;

typedef enum {
    PBACKG_REDISPLAY_OFF = 0,
    PBACKG_REDISPLAY_ON = 1
} Pbackg_redisplay;

```

```
typedef enum {
    PBACKG_STYLE_TRANSPARENT = 0,
    PBACKG_STYLE_OPAQUE = 1
} Pbackg_style;

typedef enum {
    PFALSE = 0,
    PTRUE = 1
} Pboolean;

typedef enum {
    PBORDER_OFF = 0,
    PBORDER_ON = 1
} Pborder_indic;

typedef enum {
    PCLIPCOND_IS_NOT_CLIPPED = 0,
    PCLIPCOND_IS_PARTIALLY_CLIPPED = 1,
    PCLIPCOND_IS_FULLY_CLIPPED = 2
} Pclip_cond;

typedef enum {
    PCLOSURE_PIE = 0,
    PCLOSURE_SEGMENT = 1
} Pclosure;

union _Pin_class_data;

typedef struct _Pset_data {
    Pin_class dev_class;
    Pint num_in_set;
    _Pin_class_data *data;
} Pset_data;
```

```

typedef struct {
    Pint      max_measures,           /* max instances          */
    Pint      max_simul_trig,         /* max simul. trigger procs */
    Pint      max_simul_echo,         /* max simul. echo procs   */
    Pint      max_simul_ack,          /* max simul. ack. procs   */
    Pint_list loc_meas_proc_ids,      /* avail locator meas proc ids */
    Pint_list stroke_meas_proc_ids,   /* avail stroke meas proc ids */
    Pint_list val_meas_proc_ids,      /* avail valuator meas proc ids */
    Pint_list choice_meas_proc_ids,   /* avail choice meas proc ids */
    Pint_list pick_meas_proc_ids,     /* avail pick meas proc ids  */
    Pint_list string_meas_proc_ids,   /* avail string meas proc ids */
    Pint_list set_meas_proc_ids,      /* avail set meas proc ids   */
    Pint_list composite_meas_proc_ids, /* avail compos meas proc ids */
    Pint_list trig_proc_ids,          /* avail trigger proc ids   */
    Pint_list loc_echo_proc_ids,      /* avail locator echo proc ids */
    Pint_list stroke_echo_proc_ids,   /* avail stroke echo proc ids */
    Pint_list val_echo_proc_ids,      /* avail valuator echo proc ids */
    Pint_list choice_echo_proc_ids,   /* avail choice echo proc ids */
    Pint_list pick_echo_proc_ids,     /* avail pick echo proc ids  */
    Pint_list string_echo_proc_ids,   /* avail string echo proc ids */
    Pint_list set_echo_proc_ids,      /* avail set echo proc ids   */
    Pint_list comp_echo_proc_ids,     /* avail compos echo proc ids */
    Pint_list ack_proc_ids            /* avail ack. proc ids      */
} Pset_facs;

typedef struct _Pcomposite_individual {
    Pin_class      class;
    _Pin_class_data *data;
} Pcomposite_individual;

typedef struct {
    Pint      count;
    Pcomposite_individual *individual;
} Pcomposite_data;

```

```

typedef struct {
    Pint      max_simul_meas,      /* max simul. measure procs      */
    Pint      max_simul_trig,      /* max simul. trigger procs      */
    Pint      max_simul_echo,      /* max simul. echo procs         */
    Pint      max_simul_ack,       /* max simul. acknowledgement procs */
                                /* */
    Pint_list loc_meas_proc_ids,   /* avail. locator measure proc. ids */
                                /* */
    Pint_list stroke_meas_proc_ids, /* avail. stroke measure proc. ids */
                                /* */
    Pint_list val_meas_proc_ids,   /* avail. valuator measure proc. ids */
                                /* */
    Pint_list choice_meas_proc_ids, /* avail. choice measure proc. ids */
                                /* */
    Pint_list pick_meas_proc_ids,  /* avail. pick measure proc. ids */
    Pint_list string_meas_proc_ids, /* avail. string measure proc. ids */
                                /* */
    Pint_list set_meas_proc_ids,   /* avail. set measure proc. ids */
    Pint_list composite_meas_proc_ids, /* avail. composite meas. proc. ids */
                                /* */
    Pint_list trig_proc_ids,       /* available trigger process ids */
    Pint_list loc_echo_proc_ids,   /* available locator echo proc. ids */
                                /* */
    Pint_list stroke_echo_proc_ids, /* available stroke echo proc. ids */
                                /* */
    Pint_list val_echo_proc_ids,   /* available valuator echo proc. ids */
                                /* */
    Pint_list choice_echo_proc_ids, /* available choice echo proc. ids */
                                /* */
    Pint_list pick_echo_proc_ids,  /* available pick echo proc. ids */
    Pint_list string_echo_proc_ids, /* available string echo proc. ids */
                                /* */
    Pint_list set_echo_proc_ids,   /* available set echo proc. ids */
    Pint_list comp_echo_proc_ids,  /* available composite echo proc. ids */
                                /* */
    Pint_list ack_proc_ids         /* available ack. proc. ids      */

} Pcomposite_facs;

```

```

typedef union _Pin_class_data {
    Pint          unused;
    Ploc_data     loc;
    Ploc_data3    loc3;
    Pstroke_data  stroke;
    Pstroke_data3 stroke3;
    Pval_data     val;
    Pval_data3    val3;
    Pchoice_data  choice;
    Pchoice_data3 choice3;
    Ppick_data    pick;
    Ppick_data3   pick3;
    Pstring_data  string;
    Pstring_data3 string3;
    Pset_data     set;
    Pcomposite_data composite;
    ...          /* other classes of input data */
} Pin_class_data;

typedef enum {
    PCOMP_IN_STATUS_NONE = 0,
    PCOMP_IN_STATUS_OK = 1,
    PCOMP_IN_STATUS_INCOMPLETE = 2
} Pcomp_in_style;

typedef struct {
    Pcond_flag_mask enable_mask; /* condition flag enable mask */
    Pcond_flag_mask disable_mask; /* condition flag disable mask */
} Pcond_flags;

typedef struct {
    Ptest          test; /* test operation */
    Pcond_flags    mask; /* condition test mask */
} Pcond_flag_test;

typedef struct {
    Pint          num_tests; /* number of condition test */
    Pcond_flag_test *tests; /* list of condition flag tests */
} Pcond_test_list;

```

```

typedef struct {
    Pint        num_invis_filters; /* number of avail. invisibility filters
                                   */
    Pint        num_highl_filters; /* number of avail. highlighting filters
                                   */
    Pint        num_pick_filters; /* number of avail. pick filters */
    Pint        num_appl_filters; /* number of avail. application filters
                                   */
    Pint        num_appl_integers; /* number of application integer
                                   /* values supported */
    Pint        num_appl_reals;    /* number of application real values */
                                   /* supported */
    Pint_list   test_methods;      /* list of test methods available */
} Pcond_trav_fac;

typedef struct {
    Pint        name_size;          /* size of name */
    char        *name;              /* configuration setting name */
} Pconfig_name;

typedef struct {
    Pint        list_size;          /* number of names */
    Pconfig_name *name;             /* configuration name list */
} Pconfig_name_list;

typedef struct {
    Pint        num_supported;      /* number of simultaneously supported
                                   */
                                   /* device coordinate clip regions */
} Pconfig_setting_fac;

typedef union {
    Pint        int_value;          /* integer configuration value */
    Pfloat      real_value;         /* real configuration value */
    char        *string_value;      /* string configuration value */
} Pconfig_value;

typedef struct {
    char        *name;              /* configuration setting name */
    Pconfig_value *value;           /* configuration setting value */
} Pconfig_settings;

```

```

typedef struct {
    Pint    num_supported;    /* number of simultaneously supported */
                                /* device coordinate clip regions    */
} Pdc_clip_facs;

typedef struct {
    unsigned int mode:1;
    unsigned int ref_planes:1;
    unsigned int scale:1;
    unsigned int gcolr:1;
    unsigned int :28;
} Pdepth_cue_mask;

typedef enum {
    PDIM_INTERPRET_NONE = 0,
    PDIM_INTERPRET_STATE = 1,
    PDIM_INTERPRET_ALL = 2
} Pdi_mode;

typedef struct {
    Pint    num_trav_procs;    /* number of simultaneously posted */
                                /* traversal processes              */
    Pint    num_rend_algorithms; /* number of multi-pass algorithms */
                                /* supported for rendering         */
    Pint    num_pick_algorithms; /* number of multi-pass algorithms */
                                /* supported for picking           */
} Pdi_trav_facs;

typedef struct {
    Pin_class dev_class;    /* input class*/
    Pint      instance;    /* i = ith of class in LID def.*/
} Pecho_measure_proc;

typedef struct {
    Pint      pet;
    Pecho_measure_proc *measures_echoed;
    Pint      process_id;
} Pecho_process;

```

```

typedef struct {
    Pint          count;
    Pecho_process *procs;
} Pecho_process_list;

typedef struct {
    Pedge_flag      flag;          /* edge flag          */
    Pint            type;          /* edgetype           */
    Pfloat          width;        /* edgewidth scale factor */
    Pcolr           colr;         /* edge colour        */
    Plinetype_adapt adapt;        /* edgetype adaptability */
    Plinetype_cont  cont;         /* edgetype continuity  */
    Pfloat          offset;       /* edgetype offset      */
    Plinecap        cap;          /* edgecap             */
    Plinejoin       join;         /* edgejoin            */
    Pfloat          limit;        /* edgemitre limit     */
} Pedge_bundle_full;

typedef struct {
    unsigned int flag:1;
    unsigned int type:1;
    unsigned int width:1;
    unsigned int colr:1;
    unsigned int adapt:1;
    unsigned int cont:1;
    unsigned int offset:1;
    unsigned int cap:1;
    unsigned int join:1;
    unsigned int limit:1;
    unsigned int :22;
} Pedge_mask;

typedef enum {
    PEDTA_EXACT = 0,
    PEDTA_ADAPT = 1
} Pedgetype_adapt;

typedef enum {
    PEDC_BUTT = 0,
    PEDC_ROUND = 1,
    PEDC_SQUARE = 2
} Pedgecap;

```

```

typedef enum {
    PEDTC_CONTINUOUS = 0,
    PEDTC_RESTART = 1
} Pedgetype_cont;

typedef enum {
    PEDJ_FLAT = 0,
    PEDJ_MITRE = 1,
    PEDJ_ROUND = 2,
    PEDJ_BEVEL = 3
} Pedgejoin;

typedef struct {
    Pint_list pattern_types; /* list of supported pattern types */
    Pint_list image_spec_methods; /* list of supported image */
                                /* specification methods */
} Pext_pat_fac;

typedef enum {
    PERASE_OFF = 0,
    PERASE_ON = 1
} Perase;

typedef struct {
    Pint_list image_spec_methods; /* list of supported image */
                                /* specification methods */
    Pint num_def_ids; /* number of definable image */
                    /* resource identifiers */
    Pint num_predef_ids; /* number of predefined image */
                    /* resources */
} Pimage_res_fac;

typedef struct {
    unsigned int style:1;
    unsigned int style_ind:1;
    unsigned int colr:1;
    unsigned int shad_method:1;
    unsigned int :28;
} Pinterior_mask;

```

```
typedef struct {
    Pint          num_limits;          /* number of limits          */
    Plimit        *limits;             /* list of limits            */
} Plimit_list;

typedef struct {
    Pint          num_limits;          /* number of limits          */
    Plimit3       *limits;             /* list of limits            */
} Plimit3_list;

typedef struct {
    Pint          light_ws_id;          /* workstation id for view   */
    Pint          light_src_ind;        /* view index                */
    Pint          light_action_type;    /* view action type          */
    Pint          transfer_type;        /* measure transfer type     */
} Plight_attach;

typedef enum {
    PLNC_BUTT = 0,
    PLNC_ROUND = 1,
    PLNC_SQUARE = 2
} Plinecap;

typedef enum {
    PLNJ_FLAT = 0,
    PLNJ_MITRE = 1,
    PLNJ_ROUND = 2,
    PLNJ_BEVEL = 3
} Plinejoin;

typedef enum {
    PLNTA_EXACT = 0,
    PLNTA_ADAPT = 1
} Plinetype_adapt;

typedef enum {
    PLNTC_CONTINUOUS = 0,
    PLNTC_RESTART = 1
} Plinetype_cont;
```

```

typedef struct {
    Pint          type;          /* linetype                */
    Pfloat         width;        /* linewidth scale factor  */
    Pcolr          colr;         /* polyline colour         */
    Pint          shad_method;   /* polyline shading method */
    Pcurve_approx_crit_data
        curve_approx_crit_data; /* curve approx. criteria  */
    Plinetype_adapt adapt;      /* linetype adaptability   */
    Plinetype_cont  cont;       /* linetype continuity     */
    Pfloat         offset;       /* linetype offset        */
    Plinecap        cap;         /* linecap                 */
    Plinejoin       join;        /* linejoin                */
    Pfloat         limit;        /* linemitre limit        */
} Pline_bundle_full;

typedef struct {
    Pint      num_definable;      /* number definable linetypes */
    Pint      num_predefined;     /* number predefined linetypes */
    Pint      max_dash_segments; /* maximum dash segments supported */
    Pfloat     offset;           /* offset to definable linetypes */
    Pint_list predef_def_linetypes /* list of predef. definable linetypes */
} Plinetype_def_facs;

typedef struct {
    Pfloat      lum_value;        /* luminance_value          */
    Pfloat      alpha_value;     /* alpha value              */
} Plum_alpha_pair;

typedef struct {
    Pint_size    dims;           /* array dimensions          */
    Plum_alpha_pair *values;     /* 2D array of luminance/alpha pairs */
} Plum_alpha_array;

typedef struct {
    Pint      num_arrays;        /* number of arrays in set   */
    Plum_alpha_array *sets;      /* set of 2D luminance/alpha arrays */
} Plum_alpha_array_set;

```

```

typedef struct {
    Pint          shape_type;      /* shape type          */
    union _Pshape_data {
        Ppoint_list polyline;      /* for PSHAPE_POLYLINE */
        Ppoint_list fill_area;     /* for PSHAPE_FILL_AREA */
        Ppoint_list convex_fill_area; /* for PSHAPE_CONVEX_FILL_AREA */
        ...                       /* implementation defined */
    } shape_data;                /* marker shape data    */
} Pmarker_data;

typedef struct {
    Pint          number_shapes;    /* number of shapes     */
    Pmarker_data  *marker;         /* array of shape descriptors */
} Pmarker_desc;

typedef struct {
    Pint          num_definable;    /* number definable marker types */
    Pint          num_predefined;   /* number predefined marker types */
    Pfloat        offset;          /* offset to definable linetypes */
    Pint          max_allowable_pts; /* maximum allowable points      */
    Pint_list     shape_types;      /* list of available shape types  */
    Pint_list     predef_marker_types /* list of predefined marker types */
} Pmarker_type_def_facs;

typedef union _Pin_class_measure; /* used for defining _Pmeasure */
/* and _Pset_measure */

typedef struct _Pmeasure {
    Pin_class     class;
    _Pin_class_measure *data;
} Pmeasure;

typedef struct _Pset_measure {
    Pin_class     dev_class;      /* input class of set */
    Pint          set_size;      /* size of measure set */
    _Pin_class_measure *measure_set; /* array of measures of same */
    /* class */
} Pset_measure;

```

```

typedef struct _Pcomposite_measure {
    Pint        count;                /* number of measure components*/
    Pmeasure     *measures;           /* list of measure components */
} Pcomposite_measure;

typedef union _Pin_class_measure {
    struct {
        Pint        view_ind;
        Ppoint       loc_pos;
    } loc;
    struct {
        Pint        view_ind;
        Ppoint3      loc_pos;
    } loc3;
    struct {
        Pint        view_ind;
        Ppoint_list  points;
    } stroke;
    struct {
        Pint        view_ind;
        Ppoint_list3 points;
    } stroke3;
    Pfloat          val;
    struct {
        Pin_status   istat;
        Pint         selection;
    } choice;
    struct {
        Pin_status   istat;
        Ppick_path   *path;
    } pick;
    char            *string;
    Pset_measure     *set;
    Pcomposite_measure *composite;
    ...              /* other classes which may be added */
} Pin_class_measure;

```

```

typedef struct {
    Pint          dev_class;
    Pint          process_id;
} Pmeas_process;

typedef struct _Pmeas_process_list {
    Pint          count;          /* number of process in list */
    Pmeas_process *measure_procs; /* list of measure processes */
} Pmeas_process_list;

typedef struct {
    Pint          set_maxsize;    /* maximum set size */
    Pmeas_process process_id;     /* measure process identifier */
} Pmeas_process_set;

typedef enum {
    PNA_IN_STATUS_NONE = 0,
    PNA_IN_STATUS_INCOMPLETE = 1,
    PNA_IN_STATUS_OK = 2
} Pna_in_status;

typedef struct {
    Pint          set;          /* number available set LIDs */
    Pint          composite;    /* number available composite LIDs */
} Pnum_na_in;

typedef struct {
    unsigned int pat_bundle:1;
    unsigned int pat_rep_plus:1;
    unsigned int ext_pat_rep:1;
    unsigned int :29;
} Ppattern_mask;

typedef struct _Ppick_path_list {
    Pint          num_paths;    /* number paths in list */
    Ppick_path    *paths;      /* array of pick paths */
} Ppick_path_list;

```

```

typedef struct {
    Pint          type;          /* pattern type */
    union _Ppattern_data {
        struct Ppat_colr_ind_array {
            Ppat_rep pat_rep;    /* pattern representation */
        } pat_colr_ind_array;
        struct Ppat_colr_array {
            Ppat_rep_plus pat_rep_plus; /* pattern representation plus */
        } pat_colr_array;
        struct Ppat_image_res {
            Pint image_res_id;    /* pattern image resource */
        } pat_image_res;
        ...                      /* implementation defined */
    } data;                      /* pattern data */
} Ppattern;

typedef enum {
    PPICK_STAT_FALSE = 0,
    PPICK_STAT_TRUE = 1
} Ppick_stat;

typedef struct {
    Pint          pick_type;
    union _Ppick_type_data {
        Pint unused;             /* workstation-dependent */
        Pfloat_size3 rect_aperture; /* 3D rectangular aperture */
        Pfloat_size3 vis_rect_aperture; /* 3D rectangular aperture
                                         /* visible primitives only */
        Ppoint_list user_aperture; /* user-specified aperture */
        ... /* data for impl. defined pick types */
    } data;
} Ppick_type_data;

typedef enum {
    PPICT_STAT_COMP = 0,
    PPICT_STAT_INCOMP = 1
} Ppict_stat;

```

```

typedef struct {
    unsigned int type:1;
    unsigned int width:1;
    unsigned int colr:1;
    unsigned int shad_method:1;
    unsigned int curve_approx_crit_data:1;
    unsigned int adapt:1;
    unsigned int cont:1;
    unsigned int offset:1;
    unsigned int cap:1;
    unsigned int join:1;
    unsigned int limit:1;
    unsigned int :21;
} Ppolyline_mask;

typedef struct {
    unsigned int type:1;
    unsigned int size:1;
    unsigned int colr:1;
    unsigned int :29;
} Ppolymarker_mask;

typedef enum {
    PPOSTED_FALSE = 0,
    PPOSTED_TRUE = 1
} Pposted_ind;

typedef struct {
    Pint      num_def_grps; /* number of definable posting groups */
    Pint      num_predef_grps; /* number of predefined posting groups */
    Pint_list predef_grps; /* list of predefined posting groups */
    Pint_list backg_methods; /* list of supported posting group */
                                /* background methods */
} Ppost_grp_facs;

typedef enum {
    PPGSTAT_INACTIVE = 0,
    PPGSTAT_ACTIVE = 1
} Ppost_grp_status;

```

```
typedef struct {
    unsigned int refl_model:1;
    unsigned int data:1;
    unsigned int :30;
} Prefl_mask;

typedef enum {
    PREF_EXECUTE = 0,
    PREF_INSTANCE = 1
} Pref_type;

typedef enum {
    PSCALE_NOT_SCALABLE,
    PSCALE_SCALABLE
} Pscale_flag;

typedef enum {
    PSI_NOT_SUPPORTED = 0,
    PSI_SUPPORTED = 1
} Psupport_indication;

typedef enum {
    PTARG_DATA_ST_ABSENT = 0,
    PTARG_DATA_ST_PRESENT = 1
} Ptarg_data_st;

typedef enum {
    PTARG_EMPTY_ST_EMPTY = 0,
    PTARG_EMPTY_ST_NOT_EMPTY = 1
} Ptarg_empty_st;

typedef struct {
    Pint          num_avail_targets; /* number of available targets */
} Ptarget_facs;
```

```

typedef enum {
    PBASE_TARG = 0,
    PREND_TARG = 1,
    PDISP_TARG = 2
} Ptarg_type;

typedef struct {
    Pint          num_targ_types; /* number of target types */
    Ptarg_type    *targ_types;   /* list of target types */
} Ptarg_type_list;

typedef struct {
    Ptarg_type    ref_targ;      /* reference target */
    Pint          offset;       /* offset from reference target */
} Ptarg_addr;

typedef struct {
    Pint          type;          /* target operation type */
    union _Ptarget_op_data {
        struct Prend_targ {
            Ptarg_addr targ_addr; /* target address */
        } rend_targ;
        struct Pdisp_targ {
            Ptarg_addr targ_addr; /* target address */
        } disp_targ;
        struct Pclear_targ {
            Ptarg_addr targ_addr; /* target address */
        } clear_targ;
        struct Pcopy_targ {
            Ptarg_addr src_targ_addr; /* source target address */
            Ptarg_addr dest_targ_addr; /* destination target address */
        } copy_targ;
        ... /* implementation defined */
    } data; /* target operation data */
} Ptarg_op;

typedef struct {
    Pint          num_ops;      /* number of target operations */
    Ptarg_op      *targ_ops;    /* list of target operations */
} Ptarg_op_list;

```

```

typedef enum {
    PTRL_EQUAL = 0,
    PTRL_NOT_EQUAL = 1,
    PTRL_GREATER = 2,
    PTRL_LESS = 3,
    PTRL_GREATER_OR_EQUAL = 4,
    PTRL_LESS_OR_EQUAL = 5
} Ptest_comp_rel;

typedef enum {
    PTLG_BITWISE_AND = 1,
    PTLG_BITWISE_OR = 2,
    PTLG_BITWISE_XOR = 3
} Ptest_comp_logical;

typedef struct {
    unsigned int font:1;
    unsigned int precision:1;
    unsigned int char_expan:1;
    unsigned int char_space:1;
    unsigned int colr:1;
    unsigned int :27;
} Ptext_mask;

typedef struct {
    Pint          id;           /* traversal resource identifier*/
    Pint          type;        /* traversal resource type*/
} Ptrav_res;

typedef struct {
    Pint          num_trav_res; /* number of traversal resources*/
    Ptrav_res     *trav_res;   /* list of traversal resources*/
} Ptrav_res_list;

```

```
typedef struct {
    Ptrav_res_list avail_trav_res; /* list of avail trav. resources */
} Ptrav_res_fac;

typedef enum {
    PTRAV_RENDER = 0,
    PTRAV_PICK = 1
} Ptrav_type;

typedef enum {
    PTRIGGER_BREAK = 0,
    PTRIGGER_SELECT = 1,
    PTRIGGER_EVENT = 2,
    PTRIGGER_DELETE = 3
} Ptrig_type;

typedef struct {
    Ptrig_type      type;
    Pint            process_id;
} Ptrig_process;

typedef struct {
    Pint            count;
    Ptrig_process   *procs;
} Ptrig_process_list;

typedef struct {
    Pint            view_ws_id;          /* workstation id for view */
    Pint            view_ind;            /* view index */
    Pint            view_action_type;    /* view action type */
    Pint            transfer_type;        /* measure transfer type */
    Pint            view_upd_method;     /* view update method */
} Pview_attach;
```

```

typedef enum {
    PVIEW_ST_CORRESPOND = 0,
    PVIEW_ST_DIFFERENT = 1
} Pview_status;

typedef enum {
    PWATCH_OFF = 0,
    PWATCH_ON = 1
} Pwatch_enable;

typedef struct {
    Pint_size      dims;          /* float array dimensions */
    Pfloat         *floats;       /* float array */
} Pfloat_array;

typedef struct {
    Pint           num_arrays;     /* number of float arrays in set */
    Pfloat_array   *floats;       /* float arrays */
} Pfloat_array_set;

typedef struct {
    Pint image_spec_method;
    union _Pimage_data {
        struct Puncomp_colr_ind_array {
            Pint *colr_ind_array; /* uncompressed array of */
                                   /* colour indices */
        } uncomp_colr_ind_array;
        struct Puncomp_colr_array {
            Pgcldr_array *colr_array; /* uncompressed array of */
                                       /* colours */
        } uncomp_colr_array;
        struct Pwindow_sys_bitmap {
            Pint handle; /* bitmap handle */
        } window_sys_bitmap;
        struct Pvideo_sig_chan_id {
            Pint chan_id; /* video signal channel id */
        } video_sig_chan_id;
        struct Pluminance {
            Pfloat_array *lum_values; /* uncompressed array of */
                                       /* luminance values */
        } luminance;
    };
}

```

```

struct Pluminance_alpha {
    Plum_alpha_array *lum_values; /* uncompressed array of      */
                                /* luminance values          */
} luminance_alpha;
struct Pmipmap_colrs {
    Pgcolr_array_set *colr_arrays; /* set of uncompressed      */
                                /* colour arrays            */
} mipmap_colrs;
struct Pmipmap_luminance {
    Pfloat_array_set *lum_values; /* set of uncompressed      */
                                /* luminance arrays         */
} mipmap_luminance;
struct Pmipmap_luminance_alpha {
    Plum_alpha_array_set *lum_values; /* set of uncompressed      */
                                /* luminance/alpha arrays */
} mipmap_luminance_alpha;
int impl_def /* implementation defined methods */
} image_data;
} Pimage_res;

typedef struct {
    Pint method; /* background method */
    union Pbackg_method_data {
        struct Pcolr_table_0 {
            Pint unused; /* unused */
        } colr_table_0;
        struct Pcolr_ind {
            Pint colr_ind; /* colour index */
        } colr_ind;
        struct Pcolr {
            Pcolr_rep colr_rep; /* target address */
        } colr;
        struct Pimage_resource {
            Pint image_resource_id; /* image resource identifier */
        } image_resource;
        ... /* implementation defined */
    } data;
} Pbackg_method;

```

```

typedef struct {
    Pint          type;                /* trav. res. operation type */
    union Ptrav_res_op_data {
        struct Ptrav_res_clear {
            Pint    res_id;            /* traversal resource id. */
        } trav_res_clear;
        struct Ptrav_res_copy {
            Pint    src_res_id;        /* source traversal res. id */
            Pint    dest_res_id;      /* destination trav. res. id */
        } trav_res_copy;
        ...                            /* implementation defined */
    } data;                            /* trav. res. operation data */
} Ptrav_res_op;

typedef struct {
    union Pdi_pick_pets {
        struct Pdi_pick_pet_other {
            Pint    unused;
        } pet_other; /* When no echo-specific data is required */
        struct Pdi_pick_pet_r1 {
            Pint    imp_dep;           /* impl. dependent */
        } pet_r1; /* For PET 1 */
        ...                            /* implementation defined PET's */
    } pets;
    union Pdi_pick_measure_data {
        struct Pdi_pick_meas_other {
            Pint    unused;
        } meas_other; /* When no measure-specific data is required */
        Pint    imp_dep; /* data for impl. defined measure processes */
    } measure_data;
    union Pdi_pick_trigger_data {
        struct Pdi_pick_trig_other {
            Pint    unused;
        } trig_other; /* When no trigger-specific data is required */
        Pint    imp_dep; /* data for impl. defined di_pick processes */
    } trigger_data;
    union Pdi_pick_ack_data {
        struct Pdi_pick_ack_other {
            Pint    unused;
        } ack_other; /* When no ack.-specific data is required */
    }

```

```

    Pint    imp_dep; /* data for impl. defined ack. processes */
} acknowledgement_data;

} Pdi_pick_data;

typedef struct {
    union Pdi_pick3_pets {
        struct Pdi_pick3_pet_other {
            Pint    unused;
        } pet_other; /* When no echo-specific data is required */
        struct Pdi_pick3_pet_r1 {
            Pint    imp_dep; /* impl. dependent */
        } pet_r1; /* For PET 1 */
        Pint    imp_dep; /* data for impl. defined pets */
    } pets;
    union Pdi_pick3_measure_data {
        struct Pdi_pick3_meas_other {
            Pint    unused;
        } meas_other; /* When no measure-specific data is required */
        Pint    imp_dep; /* data for impl. defined measure processes */
    } measure_data;
    union Pdi_pick3_trigger_data {
        struct Pdi_pick3_trig_other {
            Pint    unused;
        } trig_other; /* When no trigger-specific data is required */
        Pint    imp_dep; /* data for impl. defined di_pick processes */
    } trigger_data;
    union Pdi_pick3_ack_data {
        struct Pdi_pick3_ack_other {
            Pint    unused;
        } ack_other; /* When no ack.-specific data is required */
        Pint    imp_dep; /* data for impl. defined ack. processes */
    } acknowledgement_data;
} Pdi_pick_data3;

typedef struct {
    Pint_list  alpha_srcs; /* list available alpha sources */
    Pint_list  transp_modes; /* list transparency modes supported */
} Palpha_facs;

```

```

typedef struct {
    Pdyn_mod    texture_rep;          /* texture representation          */
} Pdyns_ws_attrs_texture;

typedef struct {
    Pint        max_dims[3];          /* max dimensions mipmap base level */
    Pboolean    equal_dims_req;       /* equal mipmap dimensions required */
    Pboolean    power_2_dims_req;     /* power of 2 mipmap dimensions req. */
} Pmipmap_facs;

typedef enum {
    PPERSP_CORR_NONE = 0,
    PPERSP_CORR_AT_VERTICES = 1,
    PPERSP_CORR_INTERIOR = 2
} Pperspect_corr;

typedef struct {
    Pint_list    avail_pick_types;    /* list available pick types        */
    Pint_list    avail_echo_types;    /* list of available echo types     */
} Ppick_mapping_facs;

typedef enum {
    PRES_HINTS_UTILIZED_NO,
    PRES_HINTS_UTILIZED_YES
} Pres_hints;

typedef struct {
    Pint        image_res_id;          /* texture image resource identifier */
    Pint        rendering_order;       /* rendering order                   */
} Ptexture_binding;

typedef struct {
    Pint        method;               /* composition method                */
    union {
        Pint        unused;           /* used by methods 1, 2, and 4      */
        struct {
            Pcolour    environ;       /* used by method 3                 */
            Pint        gamma_chan_sel; /* environment colour                */
            Pint        gamma_chan_sel; /* gamma channel selector           */
        } blend_env;
    };
}

```

```

        Pgcclr        background_clr; /* used by method 5          */
        ...           /* implementation defined                  */
    } data;

} Ptexture_compos;

typedef struct {
    Pint_list  coord_srcs;      /* list avail. coordinate sources */
    Pint_list  compos_methods;  /* list avail. composition methods */
    Pint_list  min_methods;     /* list avail. minification methods */
    Pint_list  mag_methods;     /* list avail. magnification methods */
    Pint_list  bound_cond;     /* list avail. boundary conditions */
    Pint_list  clamp_methods;   /* list avail. boundary clamp methods */
    Pint_list  render_orders;   /* list avail. rendering orders */
    Pint       num_pred_inds;    /* number predefined texture indices */

} Ptexture_facs;

typedef enum {
    PTUP_UTILIZED_NO = 0,
    PTUP_UTILIZED_YES = 1
} Ptup_util;

typedef struct {
    Pint       max_simul;      /* max number simultaneously */
    Pint_list  perspect_corr;  /* list of available perspective */
    Pint_list  sampling_freqs; /* list avail. sampling frequencies */
    Pint_list  opt_hints;     /* list of available resource */
    Ptup_util  usage;         /* utilization of texture usage */
    Pint_list  image_res_types; /* list of image resource types */

} Ptexture_map_facs;

```

```

typedef struct {
    unsigned int coord_src:1;
    unsigned int coord_src_data:1;
    unsigned int orientation:1;
    unsigned int compos_method:1;
    unsigned int compos_data:1;
    unsigned int min_method:1;
    unsigned int max_method:1;
    unsigned int bound_conds:1;
    unsigned int clamp_method:1
    unsigned int clamp_data:1
    unsigned int depth_sampl_hint:1
    unsigned int freq_wt_hints:1
    unsigned int image_res_id:1
    unsigned int rendering_order:1
    unsigned int :18
} Ptexture_mask;

typedef struct {
    Pint          coord_src;          /* coordinate source */
    union Pcoord_src_data {          /* coordinate source data record */
        Pint      unused;             /* used by coord sources 1 - 5 */
        Pint      coord_ind;          /* used by coord source 6 */
        Pmatrix3  refl_matrix;        /* used by coord sources 7 and 8 */
        ...
    } data;
} Pcoord_src;

typedef struct {
    Pcoord_src    coord_src;          /* coordinate source and data */
    Pmatrix3      orientation;        /* orientation matrix */
} Ptexture_param;

typedef struct {
    Pint          method;             /* clamp method */
    union Pclamp_method_data {
        Pint      unused;             /* used by method 1 */
        Pgcolr    clamp_colr;        /* used by method 2 */
        ...
    } data;
} Pclamp_method;

```

```

typedef struct {
    Pint          min_method;          /* minification method          */
    Pint          mag_method;          /* magnification method          */
    Pint          bound_conds[3];       /* boundary conditions           */
    Pclamp_method clamp;               /* boundary clamp method & data */
    Pfloat        depth_sampl_hint;     /* depth sampling hint           */
    Pfloat        freq_wt_hints[3];     /* frequency weight hints        */
} Ptexture_sampling;

typedef struct {
    Ptexture_param param;              /* texture parametrization       */
    Ptexture_compos compos;            /* texture composition           */
    Ptexture_sampling sampling;        /* texture sampling              */
    Ptexture_binding binding;          /* texture binding               */
} Ptexture_rep;

typedef struct {
    Pint          opt_hint;             /* optimization hint             */
    Pint_list      usage_priorities;    /* texture usage priorities      */
} Ptexture_res_opt_heur;

typedef struct {
    Pint          max_simul_trig,       /* max simul. trigger procs      */
    Pint          max_simul_echo,       /* max simul. echo procs         */
    Pint          max_simul_ack,        /* max simul. acknowledgement procs */
    Pint_list      meas_proc_ids,        /* available measure process ids  */
    Pint_list      trig_proc_ids,        /* available trigger process ids   */
    Pint_list      echo_proc_ids,        /* available echo process ids      */
    Pint_list      ack_proc_ids,         /* available acknowledgement process ids */
    /*
} Pval_fac;

typedef struct {
    Pint          highl_rep;             /* max. # of highlighting table entries */
} Pws_st_tables_highl;

typedef struct {
    Pint          texture_rep;           /* max. # of texture table entries */
} Pws_st_tables_texture;”

```

Page 195

The following text is inserted before the definition of pelem_data:

```

“
typedef struct {
    Pint          num_pred;          /* number of predefined methods */
    Pint_list     methods;           /* number of highl. methods supp. */
    Pint          max_highl_ind;     /* max highl. table indices */
} Phighl_facs;

typedef struct {
    Pint          method;
    union _Phighl_data {
        Pint      unused;
        Pfloat    blink_rate;
        Pint      colr_ind;
        Pgcolr    colr;
        struct _Phighl_blink_colr {
            Pfloat    blink_rate;
            Pgcolr    blink_colr;
        } highl_blink_colr;
        ...        /* implementation defined methods*/
    } highl_data;
} Phighl_method;

typedef enum {
    PTRL_EQUAL = 0,
    PTRL_NOT_EQUAL = 1,
    PTRL_GREATER = 2,
    PTRL_LESS = 3,
    PTRL_GREATER_OR_EQUAL = 4,
    PTRL_LESS_OR_EQUAL = 5,
    PTLG_BITWISE_AND = 6,
    PTLG_BITWISE_OR = 7,
    PTLG_BITWISE_XOR = 8
} Ptest_comp;

typedef enum {
    PFILTER_FAILS = 0,
    PFILTER_PASSES = 1
} Pfilter_op;

```

```
typedef enum {
    PCOND_ALL_ENABLED,
    PCOND_ALL_DISABLED,
    PCOND_NOT_ALL_DISABLED,
    PCOND_NOT_ALL_ENABLED,
    PCOND_ALWAYS_PASS,
    PCOND_NEVER_PASS
} Pcond_flags_eval_op;

typedef union {
    unsigned int mask;
    struct _Pcond_flag_set {
        unsigned int flag0:1;
        unsigned int flag1:1;
        unsigned int flag2:1;
        unsigned int flag3:1;
        unsigned int flag4:1;
        unsigned int flag5:1;
        unsigned int flag6:1;
        unsigned int flag7:1;
        unsigned int flag8:1;
        unsigned int flag9:1;
        unsigned int flag10:1;
        unsigned int flag11:1;
        unsigned int flag12:1;
        unsigned int flag13:1;
        unsigned int flag14:1;
        unsigned int flag15:1;
        unsigned int flag16:1;
        unsigned int flag17:1;
        unsigned int flag18:1;
        unsigned int flag19:1;
        unsigned int flag20:1;
        unsigned int flag21:1;
        unsigned int flag22:1;
        unsigned int flag23:1;
        unsigned int flag24:1;
        unsigned int flag25:1;
        unsigned int flag26:1;
        unsigned int flag27:1;
        unsigned int flag28:1;
        unsigned int flag29:1;
        unsigned int flag30:1;
        unsigned int flag31:1;
    } flags;
} Pcond_flag_mask;
```

```

typedef struct {
    Pint          method;          /* test method          */
    union _Ptest_data {
        struct Ptest_always_fail {
            Pint          unused;
        } test_always_fail;
        struct Ptest_always_succeed {
            Pint          unused;
        } test_always_succeed;
        struct Ptest_extent_3 {
            Plimit3       rect;          /* extent rectangle    */
            Ptest_comp    relation;      /* test relation       */
            Pfloat        threshold;     /* threshold value     */
        } test_extent_3;
        struct Ptest_extent {
            Plimit        rect;          /* extent rectangle    */
            Ptest_comp    relation;      /* test relation       */
            Pfloat        threshold;     /* threshold value     */
        } test_extent;
        struct Ptest_bounds_3 {
            Ppoint_list_list3 point_lists; /* test object        */
            Pclip_cond     cond;          /* test condition      */
        } test_bounds_3;
        struct Ptest_bounds {
            Ppoint_list_list point_lists; /* test object        */
            Pclip_cond     cond;          /* test condition      */
        } test_bounds;
        struct Ptest_nameset {
            Pint          filter_type;    /* type of filter      */
            Pint          filter_id;      /* filter identifier    */
            Pfilter_op     cond;          /* test condition      */
        } test_nameset;
        struct Ptest_appl_int {
            Pint          appl_id;        /* appl. integer selector */
            Ptest_comp    comparison;     /* test comparison      */
            Pint          data;           /* appl integer data value */
        } test_appl_int;
        struct Ptest_appl_real {
            Pint          appl_id;        /* appl. real selector  */
            Ptest_comp    comparison;     /* test comparison      */
            Pfloat        data;           /* appl real data value  */
        } test_appl_real;
        struct Ptest_cond_flags {
            Pcond_flags_eval_op op;      /* condition flags eval. op. */
        } test_cond_flags;
    };
};

```

```

    struct Ptest_appl_int_as_logical {
        Pint          appl_id;      /* appl. integer selector */
        Ptest_comp_logical comparison; /* test comparison */
        Pint          data;         /* appl integer data value */
    } test_appl_int;
    ...
} test_data; /* implementation defined */
/* test data record*/

} Ptest;”

```

Pages 195 and 196

The following text is merged into the text of the definition of pelem_data:

“

```

typedef union {
    /* start of PHIGS element data */
    ...
    /* end of PHIGS element data */
    /* start of PHIGS PLUS element data */
    ...
    /* end of PHIGS PLUS element data */
    /* start of Full PHIGS element data */
    struct Pappl_int {
        Pint    integer_id;    /* application integer identifier */
        Pint    value;         /* value for application integer */
    } appl_int;
    struct Pappl_real {
        Pint    real_id;       /* application real identifier */
        Pfloat  value;         /* value for application real */
    } appl_real;
    struct Pcircle3 {
        Ppoint3 center_point;  /* center point */
        Pfloat  radius;         /* radius */
        Pvec3   ref_vecs[2];    /* reference vectors */
    } circle3;
    struct Pcircle {
        Ppoint  center_point;  /* center point */
        Pfloat  radius;         /* radius */
    } circle;
    struct Pcircular_arc3 {
        Ppoint3 center_point;  /* center point */
        Pfloat  radius;         /* radius */
        Pvec3   ref_vecs[2];    /* reference vectors */
        Pfloat  start;          /* start angle */
        Pfloat  end;            /* end angle */
    } circular_arc3;

```

”

```

struct Pcircular_arc {
    Ppoint          center_point; /* center point */
    Pfloat          radius;       /* radius */
    Pfloat          start;        /* start angle */
    Pfloat          end;          /* end angle */
} circular_arc;

struct Pellipse3 {
    Ppoint3         center_point; /* center point */
    Pvec3           major_ref_vec; /* major axis reference vector */
    Pvec3           minor_ref_vec; /* minor axis reference vector */
} ellipse3;

struct Pellipse {
    Ppoint          center_point; /* center point */
    Pvec            major_ref_vec; /* major axis reference vector */
    Pvec            minor_ref_vec; /* minor axis reference vector */
} ellipse;

struct Pelliptical_arc3 {
    Ppoint3         center_point; /* center point */
    Pvec3           major_ref_vec; /* major axis reference vector */
    Pvec3           minor_ref_vec; /* minor axis reference vector */
    Pfloat          start;        /* start angle */
    Pfloat          end;          /* end angle */
} elliptical_arc3;

struct Pelliptical_arc {
    Ppoint          center_point; /* center point */
    Pvec            major_ref_vec; /* major axis reference vector */
    Pvec            minor_ref_vec; /* minor axis reference vector */
    Pfloat          start;        /* start angle */
    Pfloat          end;          /* end angle */
} elliptical_arc;

struct Pfill_circle3 {
    Ppoint3         center_point; /* center point */
    Pfloat          radius;       /* radius */
    Pvec3           ref_vecs[2];  /* reference vectors */
} fill_circle3;

struct Pfill_circle {
    Ppoint          center_point; /* center point */
    Pfloat          radius;       /* radius */
} fill_circle;

struct Pcircular_arc_close3 {
    Ppoint3         center_point; /* center point */
    Pfloat          radius;       /* radius */
    Pvec3           ref_vecs[2];  /* reference vectors */
    Pfloat          start;        /* start angle */
    Pfloat          end;          /* end angle */
    Pclosure        type;        /* closure type */
} circular_arc_close3;

```

```

struct Pcircular_arc_close {
    Ppoint          center_point; /* center point          */
    Pfloat          radius;       /* radius              */
    Pfloat          start;        /* start angle         */
    Pfloat          end;          /* end angle           */
    Pclosure        type;         /* closure type        */
} circular_arc_close;

struct Pfill_ellipse3 {
    Ppoint3         center_point; /* center point        */
    Pvec3           major_ref_vec; /* major axis reference vector */
    Pvec3           minor_ref_vec; /* minor axis reference vector */
} fill_ellipse3;

struct Pfill_ellipse {
    Ppoint          center_point; /* center point        */
    Pvec            major_ref_vec; /* major axis reference vector */
    Pvec            minor_ref_vec; /* minor axis reference vector */
} fill_ellipse;

struct Pelliptical_arc_close3 {
    Ppoint3         center_point; /* center point        */
    Pvec3           major_ref_vec; /* major axis reference vector */
    Pvec3           minor_ref_vec; /* minor axis reference vector */
    Pfloat          start;        /* start angle         */
    Pfloat          end;          /* end angle           */
    Pclosure        type;         /* closure type        */
} elliptical_arc_close3;

struct Pelliptical_arc_close {
    Ppoint          center_point; /* center point        */
    Pvec            major_ref_vec; /* major axis reference vector */
    Pvec            minor_ref_vec; /* minor axis reference vector */
    Pfloat          start;        /* start angle         */
    Pfloat          end;          /* end angle           */
    Pclosure        type;         /* closure type        */
} elliptical_arc_close;

Plinetype_adapt   linetype_adapt; /* linetype adaptability */
Plinetype_cont    linetype_cont;  /* linetype continuity   */
Phighl_method     highl_method;    /* highlighting method    */
Pint_list         active_textures; /* active textures        */
Pint_list         back_active_textures; /* back active textures */
Pperspect_corr    perspect_corr; /* textr perspective correction */

struct Ptexture_res_opt_heur {
    Pint           opt_hint; /* optimization hint */
    Pint_list      usage_priorities; /* texture usage priorities */
} texture_res_opt_heur;

```

```

    Pint_list      alpha_src_sel; /* alpha source selector */
    struct Pcond_exec_struct {
        Pint      struct_id; /* structure identifier */
        Ptest     test; /* condition test */
    } cond_exec_struct;
    struct Pcond_inst_struct {
        Pint      struct_id; /* structure identifier */
        Ptest     test; /* condition test */
    } cond_inst_struct;
    Ptest     cond_return; /* condition test */
    struct Pcond_skip_elems {
        Pint      skip_count; /* number of elements to skip */
        Ptest     test; /* condition test */
    } cond_skip_elems;
    struct Pcond_skip_to_label {
        Pint      label; /* label to which to skip */
        Ptest     test; /* condition test */
    } cond_skip_to_label;
    /* end of Full PHIGS element data */

} Pelem_data;”

```

Page 247

A.3 External functions

The following text is appended:

```
/* WORKSTATION TYPE CREATE */
```

```
void pws_type_create (
```

```

    Pint      ws_type, /* workstation type */
    const Pconfig_setting *settings_list, /* array of config. settings */
    Pint      *new_ws_type /* OUT new workstation type */

```

```
);
```

```
/* WORKSTATION TYPE SET */
```

```
void pws_type_set (
```

```

    Pint      ws_type, /* workstation type */
    const Pconfig_setting *settings_list /* array of config. settings */

```

```
);
```

```
/* WORKSTATION TYPE GET */
```

```
void pws_type_get (
```

```
    Pint          ws_type,          /* workstation type          */
    const char     *setting_name,    /* configuration setting name */
    Pstore         store,            /* store object for returned value */
    Pconfig_value  **setting_value   /* OUT configuration setting value */

```

```
);
```

```
/* WORKSTATION TYPE DESTROY */
```

```
void pws_type_destroy (
```

```
    Pint          ws_type          /* workstation type          */

```

```
);
```

```
/* REDRAW ALL STRUCTURES ON TARGET */
```

```
void predraw_all_structs_on_targ (
```

```
    Pint          ws_id,            /* workstation identifier     */
    const Ptarg_addr *targ_addr,    /* target address             */
    Pctrl_flag     ctrl_flag        /* control flag                */

```

```
);
```

```
/* REDRAW ALL STRUCTURES FROM POSTING GROUP */
```

```
void predraw_all_structs_from_grp (
```

```
    Pint          ws_id,            /* workstation identifier     */
    Pint          grp_id,           /* posting group              */
    Pbackg_redisplay redisplay_flag /* background redisplay flag  */

```

```
);
```

```
/* UPDATE TARGET */
```

```
void pupd_targ (
```

```
    Pint          ws_id,            /* workstation identifier     */
    const Ptarg_addr *targ_addr,    /* target address             */
    Pregen_flag    regen_flag       /* update regeneration flag    */

```

```
);
```

```
/* DEFINE POSTING GROUP */
```

```
void pdefine_post_grp (
```

```
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* posting group identifier */
    Pint          ref_grp_id,     /* reference posting group id */
    Prel_pri      rel_pri,        /* relative priority */
    Pint          def_view_ind,   /* default view index */
    Pbackg_style  backg_style,    /* posting group backg. style */
    const Pbackg_method *backg_method, /* posting group backg. method */
    Pborder_indic border_indic,   /* posting group border indic. */
    Pint          border_ind      /* posting group border index */

```

```
);
```

```
/* UNDEFINE POSTING GROUP */
```

```
void pundefine_post_grp (
```

```
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id         /* posting group identifier */

```

```
);
```

```
/* SET POSTING GROUP STATUS */
```

```
void pset_post_grp_status (
```

```
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* posting group identifier */
    Ppost_grp_status post_grp_status /* posting group status */

```

```
);
```

```
/* SET POSTING GROUP PRIORITY */
```

```
void pset_post_grp_priority (
```

```
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* posting group identifier */
    Pint          ref_grp_id,     /* reference posting group id */
    Prel_pri      rel_pri        /* relative priority */

```

```
);
```

```
/* SET POSTING GROUP BACKGROUND STYLE */
```

```
void pset_post_grp_backg_style (
```

```
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* posting group identifier */
    Pbackg_style  backg_style    /* posting group background style */

```

```
);
```

/* SET POSTING GROUP BACKGROUND METHOD */

```
void pset_post_grp_backg_method (
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* posting group identifier */
    const Pbackg_method *backg_method /* posting group background */
                                /* method */
);
```

/* SET POSTING GROUP BORDER INDICATOR */

```
void pset_post_grp_border_indicator (
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* posting group identifier */
    Pborder_indic border_indic    /* posting group border indicator */
);
```

/* SET POSTING GROUP BORDER INDEX */

```
void pset_post_grp_border_ind (
    Pint          ws_id,          /* workstation identifier */
    Pint          grp_id,         /* posting group identifier */
    Pint          border_ind      /* posting group border index */
);
```

/* ASSOCIATE IMAGE RESOURCE */

```
void passoc_image_res (
    Pint          ws_id,          /* workstation identifier */
    Pint          image_res_id,   /* image resource identifier */
    const Pint_size *dims,        /* m,n dimensions */
    const Pimage_res *image_res, /* image resource */
    Paccess_flag  *access_flag    /* OUT access flag */
);
```

/* DISASSOCIATE IMAGE RESOURCE */

```
void pdisassoc_image_res (
    Pint          ws_id,          /* workstation identifier */
    Pint          image_res_id    /* image resource identifier */
);
```

```

/* SET DEVICE COORDINATE CLIP REGIONS 3 */
void pset_dc_clip_regions3 (
    Pint          ws_id,          /* workstation identifier */
    const Plimit3_list *limit_list /* list of clip regions */
);

/* SET DEVICE COORDINATE CLIP REGIONS */
void pset_dc_clip_regions (
    Pint          ws_id,          /* workstation identifier */
    const Plimit_list *limit_list /* list of clip regions */
);

/* SET TARGET MANIPULATION MODE */
void pset_targ_manip_mode (
    Pint          ws_id,          /* workstation identifier */
    Pint          targ_manip_mode /* target manipulation mode */
);

/* SET TARGET DISPOSITION */
void pset_targ_dispos (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_op_list *targ_ops /* target operations list */
);

/* SET DISPLAY TARGET */
void pset_disp_targ (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *targ_addr  /* target address */
);

/* SET RENDERING TARGET */
void pset_rend_targ (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *targ_addr  /* target address */
);

```

```

/* CLEAR TARGET */
void pclear_targ (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *targ_addr    /* target address */
);

/* COPY TARGET */
void pcopy_targ (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *src_targ_addr, /* source target address */
    const Ptarg_addr *dest_targ_addr /* destination target address */
);

/* CREATE TARGET */
void pcreate_targ (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *targ_addr    /* target address */
);

/* DESTROY TARGET */
void pdestroy_targ (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *targ_addr    /* target address */
);

/* SET STATE OF VISUAL REPRESENTATION */
void pset_st_visual_rep (
    Pint          ws_id,          /* workstation identifier */
    Pvisual_st    visual_st       /* state of visual representation */
);

/* SET TARGET STATE OF VISUAL REPRESENTATION */
void pset_targ_st_visual_rep (
    Pint          ws_id,          /* workstation identifier */
    const Ptarg_addr *targ_addr,  /* target address */
    Pvisual_st    visual_st       /* state of visual representation */
);

```

```
/* ASSOCIATE TRAVERSAL RESOURCE */
```

```
void passoc_trav_res (
    Pint          ws_id,          /* workstation identifier */
    Pint          res_id,         /* traversal resource identifier */
    const Ptarg_addr *targ_addr   /* source target address */
);
```

```
/* DISASSOCIATE TRAVERSAL RESOURCE */
```

```
void pdisassoc_trav_res (
    Pint          ws_id,          /* workstation identifier */
    Pint          res_id         /* traversal resource identifier */
);
```

```
/* MANIPULATE TRAVERSAL RESOURCE */
```

```
void pmanip_trav_res (
    Pint          ws_id,          /* workstation identifier */
    Pint          res_id,         /* traversal resource identifier */
    const Ptrav_res_op *manip_data /* traversal resource operation */
);
```

```
/* RESET ALL TRAVERSAL RESOURCES */
```

```
void preset_all_trav_res (
    Pint          ws_id          /* workstation identifier */
);
```

```
/* RETRIEVE WINDOW SYSTEM COLOUR */
```

```
void pret_window_system_colr (
    Pint          ws_id,          /* workstation identifier */
    const Ppcolr *colr,          /* colour sought */
    Pstore        store,         /* store object for returned value */
    Pdata         **winsys_colr  /* OUT window system colour */
);
```

```
/* SET APPLICATION INTEGER */
```

```
void pset_appl_int (
    Pint          integer_id,     /* application integer identifier */
    Pint          value          /* value of application integer */
);
```

```

/* SET APPLICATION REAL */
void pset_appl_real (
    Pint    real_id,      /* application real identifier */
    Pfloat  value        /* value of application real */
);

/* CIRCLE 3 */
void pcircle3 (
    const Ppoint3  *center_point, /* center point */
    Pfloat         radius,        /* radius */
    const Pvec3    ref_vecs[2]    /* reference vectors */
);

/* CIRCLE */
void pcircle (
    const Ppoint  *center_point, /* center point */
    Pfloat        radius         /* radius */
);

/* CIRCULAR ARC 3 */
void pcircular_arc3 (
    const Ppoint3  *center_point, /* center point */
    Pfloat         radius,        /* radius */
    const Pvec3    ref_vecs[2],   /* reference vectors */
    Pfloat         start,         /* start angle */
    Pfloat         end            /* end angle */
);

/* CIRCULAR ARC */
void pcircular_arc (
    const Ppoint  *center_point, /* center point */
    Pfloat        radius,        /* radius */
    Pfloat        start,         /* start angle */
    Pfloat        end            /* end angle */
);

```

```
/* ELLIPSE 3 */
```

```
void pellipse3 (
```

```
    const Ppoint3    *center_point,    /* center point          */
    const Pvec3      *major_ref_vec,    /* major axis reference vector */
    const Pvec3      *minor_ref_vec    /* minor axis reference vector */

```

```
);
```

```
/* ELLIPSE */
```

```
void pellipse (
```

```
    const Ppoint      *center_point,    /* center point          */
    const Pvec         *major_ref_vec,    /* major axis reference vector */
    const Pvec         *minor_ref_vec    /* minor axis reference vector */

```

```
);
```

```
/* ELLIPTICAL ARC 3 */
```

```
void pelliptical_arc3 (
```

```
    const Ppoint3      *center_point,    /* center point          */
    const Pvec3         *major_ref_vec,    /* major axis reference vector */
    const Pvec3         *minor_ref_vec,    /* minor axis reference vector */
    Pfloat              start,             /* start angle           */
    Pfloat              end               /* end angle             */

```

```
);
```

```
/* ELLIPTICAL ARC */
```

```
void pelliptical_arc (
```

```
    const Ppoint      *center_point,    /* center point          */
    const Pvec         *major_ref_vec,    /* major axis reference vector */
    const Pvec         *minor_ref_vec,    /* minor axis reference vector */
    Pfloat              start,             /* start angle           */
    Pfloat              end               /* end angle             */

```

```
);
```

```
/* FILL CIRCLE 3 */
```

```
void pfill_circle3 (
```

```
    const Ppoint3      *center_point,    /* center point          */
    Pfloat              radius,           /* radius                */
    const Pvec3         ref_vecs[2]      /* reference vectors     */

```

```
);
```

```

/* FILL CIRCLE */
void pfill_circle (
    const Ppoint    *center_point, /* center point */
    Pfloat          radius        /* radius */
);

/* CIRCULAR ARC CLOSE 3 */
void pcircular_arc_close3 (
    const Ppoint3    *center_point, /* center point */
    Pfloat           radius,         /* radius */
    const Pvec3      ref_vecs[2],    /* reference vectors */
    Pfloat           start,          /* start angle */
    Pfloat           end,            /* end angle */
    Pclosure         type            /* closure type */
);

/* CIRCULAR ARC CLOSE */
void pcircular_arc_close (
    const Ppoint    *center_point, /* center point */
    Pfloat          radius,         /* radius */
    Pfloat          start,          /* start angle */
    Pfloat          end,            /* end angle */
    Pclosure        type            /* closure type */
);

/* FILL ELLIPSE 3 */
void pfill_ellipse3 (
    const Ppoint3    *center_point, /* center point */
    const Pvec3      *major_ref_vec, /* major axis reference vector */
    const Pvec3      *minor_ref_vec  /* minor axis reference vector */
);

/* FILL ELLIPSE */
void pfill_ellipse (
    const Ppoint    *center_point, /* center point */
    const Pvec       *major_ref_vec, /* major axis reference vector */
    const Pvec       *minor_ref_vec  /* minor axis reference vector */
);

```

```
/* ELLIPTICAL ARC CLOSE 3 */
```

```
void pelliptical_arc_close3 (
```

```
    const Ppoint3    *center_point,      /* center point          */
    const Pvec3      *major_ref_vec,     /* major axis reference vector */
    const Pvec3      *minor_ref_vec,     /* minor axis reference vector */
    Pfloat           start,               /* start angle           */
    Pfloat           end,                 /* end angle             */
    Pclosure         type                 /* closure type          */

```

```
);
```

```
/* ELLIPTICAL ARC CLOSE */
```

```
void pelliptical_arc_close (
```

```
    const Ppoint     *center_point,      /* center point          */
    const Pvec        *major_ref_vec,     /* major axis reference vector */
    const Pvec        *minor_ref_vec,     /* minor axis reference vector */
    Pfloat           start,               /* start angle           */
    Pfloat           end,                 /* end angle             */
    Pclosure         type                 /* closure type          */

```

```
);
```

```
/* SET HIGHLIGHTING INDEX */
```

```
void pset_highl_ind (
```

```
    Pint            highl_ind            /* highlighting index    */

```

```
);
```

```
/* SET LINETYPE ADAPTABILITY */
```

```
void pset_linetype_adapt (
```

```
    Plinetype_adapt adaptability        /* linetype adaptability */

```

```
);
```

```
/* SET LINETYPE CONTINUITY */
```

```
void pset_linetype_cont (
```

```
    Plinetype_cont  continuity          /* linetype continuity   */

```

```
);
```

```
/* SET LINETYPE OFFSET */
```

```
void pset_linetype_offset (
```

```
    Pfloat          offset              /* linetype offset      */

```

```
);
```

```

/* SET HIGHLIGHTING METHOD */
void pset_highl_method (
    const Phighl_method *method          /* highlighting method          */
);

/* SET CONDITION FLAGS */
void pset_cond_flags (
    const Pcond_flags *enable_mask,      /* condition flag enable mask */
    const Pcond_flags *disable_mask     /* condition flag disable mask */
);

/* SET CONDITION FLAGS FROM TESTS */
void pset_cond_flags_from_tests (
    const Pcond_test_list *tests         /* list of condition flag tests
                                         */
);

/* SET ACTIVE TEXTURES */
void pset_active_textures (
    const Pint_list *active_textures     /* list of active textures      */
);

/* SET BACK ACTIVE TEXTURES */
void pset_back_active_textures (
    const Pint_list *back_active_textures /* list of active textures      */
);

/* SET TEXTURE PERSPECTIVE CORRECTION */
void pset_texture_perspect_corr (
    Pperspect_corr perspect_corr         /* texture perspective correction */
);

/* SET TEXTURE SAMPLING FREQUENCY */
void pset_texture_sampling_freq (
    Pint sampling_freq                   /* texture sampling frequency    */
);

```

```
/* SET TEXTURE RESOURCE OPTIMIZATION HEURISTICS */
```

```
void pset_texture_res_opt_heur (
    Pint          opt_hint,          /* optimization hint          */
    const Pint_list *usage_priorities /* texture usage priorities    */
);
```

```
/* SET TRANSPARENCY */
```

```
void pset_transparency (
    Pfloat          transparency /* transparency                */
);
```

```
/* SET BACK TRANSPARENCY */
```

```
void pset_back_transparency (
    Pfloat          back_transparency /* back transparency           */
);
```

```
/* SET ALPHA SOURCE SELECTOR */
```

```
void pset_alpha_src_sel (
    const Pint_list *alpha_src_sel /* alpha source selector list */
);
```

```
/* SET ALPHA DATA SELECTION INDEX */
```

```
void pset_alpha_data_sel_ind (
    Pint          alpha_data_sel_ind /* alpha data selection index */
);
```

```
/* DEFINE LINETYPE */
```

```
void pdefine_linetype (
    Pint          linetype,          /* linetype                    */
    Pfloat        repeat_length,     /* repeat length                */
    const Pfloat_list *segment_lengths /* segment length list         */
);
```

```
/* DEFINE MARKER TYPE */
```

```
void pdefine_marker_type (
    Pint          marker_type, /* marker type                */
    const Pmarker_desc *marker /* marker descriptor          */
);
```

```
/* SET EXTENDED PATTERN REPRESENTATION */
```

```
void pset_ext_pat_rep (
    Pint          ws_id,          /* workstation identifier */
    Pint          pat_ind,        /* pattern bundle index */
    const Ppattern *pattern       /* extended pattern representation */
);
```

```
/* SET HIGHLIGHTING REPRESENTATION */
```

```
void pset_highl_rep (
    Pint          ws_id,          /* workstation identifier */
    Pint          highl_ind,      /* highlighting bundle index */
    const Phighl_method *method  /* highlighting method */
);
```

```
/* SET TEXTURE REPRESENTATION */
```

```
void pset_texture_rep (
    Pint          ws_id,          /* workstation identifier */
    Pint          index,          /* texture index */
    const Ptexture_rep *rep       /* texture representation */
);
```

```
/* SET TEXTURE PARAMETRIZATION */
```

```
void pset_texture_param (
    Pint          ws_id,          /* workstation identifier */
    Pint          index,          /* texture index */
    const Ptexture_param *param   /* texture parametrization */
);
```

```
/* SET TEXTURE COMPOSITION */
```

```
void pset_texture_composition (
    Pint          ws_id,          /* workstation identifier */
    Pint          index,          /* texture index */
    const Ptexture_compos *compos /* texture composition */
);
```

```
/* SET TEXTURE SAMPLING */
```

```
void pset_texture_sampling (
```

```
    Pint          ws_id,      /* workstation identifier */
    Pint          index,      /* texture index */
    const Ptexture_sampling *sampling /* texture sampling */

```

```
);
```

```
/* SET TEXTURE BINDING */
```

```
void pset_texture_binding (
```

```
    Pint          ws_id,      /* workstation identifier */
    Pint          index,      /* texture index */
    const Ptexture_binding *binding /* texture binding */

```

```
);
```

```
/* SET TRANSPARENCY MODE */
```

```
void pset_transparency_mode (
```

```
    Pint          ws_id,      /* workstation identifier */
    Pint          mode        /* transparency mode */

```

```
);
```

```
/* SET TRANSPARENCY THRESHOLDS */
```

```
void pset_transparency_thresholds (
```

```
    Pint          ws_id,      /* workstation identifier */
    const Pfloat_list *thresholds /* list of transparency thresholds */

```

```
);
```

```
/* SET APPLICATION FILTER */
```

```
void pset_appl_filter (
```

```
    Pint          ws_id,      /* workstation identifier */
    Pint          filter_selector, /* application filter selector */
    const Pfilter *filter      /* application filter */

```

```
);
```

```
/* CREATE MIPMAP TEXTURE */
```

```
void pcreate_mipmap_texture (
```

```
    Pint    ws_id,          /* workstation identifier      */
    Pint    src_image_res_id, /* source image resource id   */
    Pint    mipmap_image_res_id, /* mipmap image resource id  */
    Pint    max_levels,     /* max mipmap levels          */
    Pint    creation_heuristic /* mipmap creation heuristic */

```

```
);
```

```
/* SET VIEW REFERENCE POINT 3 */
```

```
void pset_view_ref_point3 (
```

```
    Pint    ws_id,          /* workstation id             */
    Pint    view_ind,       /* view index                 */
    const Ppoint3 *view_ref_point /* view reference point      */

```

```
);
```

```
/* SET VIEW REFERENCE POINT */
```

```
void pset_view_ref_point (
```

```
    Pint    ws_id,          /* workstation id             */
    Pint    view_ind,       /* view index                 */
    const Ppoint *view_ref_point /* view reference point      */

```

```
);
```

```
/* SET VIEW PLANE NORMAL */
```

```
void pset_view_plane_norm (
```

```
    Pint    ws_id,          /* workstation id             */
    Pint    view_ind,       /* view index                 */
    const Pvec3 *view_norm_vec /* view normal vector        */

```

```
);
```

```
/* SET VIEW UP VECTOR 3 */
```

```
void pset_view_up_vec3 (
```

```
    Pint    ws_id,          /* workstation id             */
    Pint    view_ind,       /* view index                 */
    const Pvec3 *view_up_vec /* view up vector            */

```

```
);
```