Information processing systems — Computer graphics — Programmer's Hierarchical Interactive Graphics System (PHIGS) —

Part 1:
Functional description

TECHNICAL CORRIGENDUM 2

Systèmes de traitement de l'information — Infographie — Interface de programmation du système graphique hiérarchisé (PHIGS) —

Partie 1: Description fonctionnelle

RECTIFICATIF TECHNIQUE 2

Technical corrigendum 2 to International Standard ISO/IEC 9592-1:1989 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology,* Subcommittee SC 24, *Computer graphics and image processing.*

Page 6

Subclause 3.23

Change to read:

3.23 character height: An aspect of *text* which specifies the height of an upper-case character.

Subclause 3.25

Change to read:

3.25 character spacing: An aspect of *text* which specifies the fraction of the *character height* aspect to be added between adjacent character bodies in a string.

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Descriptors : data processing, graphic data processing, information interchange, data handling, data transfer, description.

Subclause 3.27

Change to read:

3.27 character width: An aspect of *text* which specifies the width of a character. The actual width depends on the width to height ratio specified by the designer of the font to which the character belongs.

Page 35

Subclause 4.5.1

Penultimate paragraph, third and fourth sentences, change "fill area" to "fill area or fill area set" in three places.

Page 45

Subclause 4.5.5

End of the second full paragraph, replace the final sentence with:

"Character spacing is specified as a fraction of the character height aspect."

Final full paragraph (ending in 'rotated and sheared'), delete "and sheared" from the parenthetical phrase.

Page 56

Subclause 4.5.7

Add the following text to the final paragraph:

For certain combinations of TEXT PATH and TEXT ALIGNMENT, concatenation is not meaningful. For example, if the TEXT PATH is set to LEFT or RIGHT, horizontal text alignment of CENTRE is not meaningful for concatenation since this depends on the contents of the subsequent string. For text paths UP and DOWN, horizontal text alignment of LEFT or RIGHT is not meaningful nor is vertical alignment of HALF.

Page 58

Subclause 4.5.8

Item d), change "a pointer" to "an index".

Page 65

Subclause 4.5.15

Add a new paragraph before the final paragraph as follows:

The order of precedence of the filters is invisibility, then highlighting, then pick. When a primitive is eligible for both invisibility and highlighting, the invisibility attribute will apply.

Page 74

Subclause 4.6.3

Item J, add a new first element to the list of functions as follows:

SET VIEW REPRESENTATION 3.

Page 77

Subclause 4.7.2

Replace the second paragraph and matrix equation with the following:

A modelling transformation is specified by defining a 4 × 4 (for 3D) or 3 × 3 (for 2D) transformation matrix and a composition type as a structure element. On traversal, graphical output structure elements become output primitives as the composite modelling transformation is applied. The composite modelling transformation is formed from the hierarchy of component modelling transformations in the current structure path. This maps homogeneous coordinates in a modelling coordinate system to the world coordinate system as follows:

$$\begin{vmatrix} Cx \\ Cy \\ Cz \\ Cw \end{vmatrix} = \begin{vmatrix} C11 & C12 & C13 & C14 \\ C21 & C22 & C23 & C24 \\ C31 & C32 & C33 & C34 \\ C41 & C42 & C43 & C44 \end{vmatrix} \times \begin{vmatrix} MCx \\ MCy \\ MCz \\ 1 \end{vmatrix}$$

and the homogeneous world coordinates are mapped to cartesian coordinates by

$$WCx = \frac{Cx}{Cw}, WCy = \frac{Cy}{Cw}, WCz = \frac{Cz}{Cw}$$

Page 119

Subclause 5.2

REDRAW ALL STRUCTURES, change item b) to read:

b) If the control flag is set to CONDITIONALLY, the display surface may be cleared if the 'display surface empty' entry in the workstation state list is NOTEMPTY. (If the display surface is not cleared, the implementation may use knowledge of the current state of the display to optimize its actions, but it must produce a correct image.) If the control flag is set to ALWAYS, the display surface is cleared regardless of the setting of the 'display surface empty' entry. If the display surface is cleared, the 'display surface empty' flag is set to EMPTY.

REDRAW ALL STRUCTURES, change item f) to read:

f) All structures posted for this workstation (i.e., contained in the 'list of posted structures' in the workstation state list) are redisplayed. If the current state of the 'display surface empty' entry in the workstation state list is NOTEMPTY, the implementation may use knowledge of the current state of the display surface to optimize its actions. Typically, the redisplay of the structures causes the 'display surface empty' entry in the workstation state list to be set to NOTEMPTY if the set of structures posted to the workstation is also not empty.

Page 120

Subclause 5.2

UPDATE WORKSTATION, change item a) to read:

a) The display surface may be cleared if the 'display surface empty' entry in the workstation state list is NOTEMPTY. (If the display surface is not cleared, the implementation may use knowledge of the current state of the display to optimize its actions, but it must produce a correct image.) If the display surface is cleared, the 'display surface empty' flag is set to EMPTY.

Page 120

UPDATE WORKSTATION, change item e) to read:

e) All structures posted for this workstation (i.e., contained in the 'list of posted structures' in the workstation state list) are redisplayed. If the current state of the 'display surface empty' entry in the workstation state list is NOTEMPTY, the implementation may use knowledge of the current state of the display surface to optimize its actions. Typically, the redisplay of the structures causes the 'display surface empty' entry in the workstation state list to be set to NOTEMPTY if the set of structures posted to the workstation is also not empty.

Page 128

Subclause 5.3

CELL ARRAY 3, effect section, add the following to the end of the second paragraph:

If a colour index is not present in the colour table on the workstation, index 1 is used on that workstation. This also applies to index values less than 0.

CELL ARRAY 3, change the final word of the text of error *117* from "zero" to "one".

CELL ARRAY 3, remove error *113* from the list of errors for this function.

CELL ARRAY, effect section, add the following to the end of the second paragraph:

If a colour index is not present in the colour table on the workstation, index 1 is used on that workstation. This also applies to index values less than 0.

Page 129

Subclause 5.3

CELL ARRAY, change the final word of the text of error *117* from "zero" to "one".

CELL ARRAY, remove error *113* from the list of errors for this function.

Page 138

Subclause 5.4.2

SET CHARACTER EXPANSION FACTOR, third paragraph of the effect section, insert the following as the beginning of both the second and third sentences in this paragraph:

"For STRING and CHARACTER precision text, ..."

Page 140

Subclause 5.4.2

SET CHARACTER HEIGHT, fourth paragraph of the effect section, insert the following as the beginning of the paragraph:

"For STRING and CHARACTER precision text, ..."

Page 141

Subclause 5.4.2

SET ANNOTATION TEXT CHARACTER HEIGHT, fourth paragraph of the effect section, insert the following as the beginning of the paragraph:

"For STRING and CHARACTER precision text, ..."

Page 151

Subclause 5.4.4

SET POLYLINE REPRESENTATION, effect section, change

"When an element of this type is interpreted"

to

"During structure traversal"

in two places.

Page 153

Subclause 5.4.4

SET TEXT REPRESENTATION, effect section, delete the final sentence under Text font ("During ... if the text font ... on that workstation.") and delete the final sentence under Text precision ("During ... if the specified text precision ... on that workstation.")

Pages 154 and 155

Subclause 5.4.4

SET INTERIOR REPRESENTATION, effect section, delete the final sentence under Interior style ("During structure traversal, if the requested interior style ... on that workstation.")

Page 156

Subclause 5.4.4

SET EDGE REPRESENTATION, error *107* should precede error *113* in the list of errors.

Page 166

Subclause 5.5.2

SET VIEW REPRESENTATION 3, in error *150*, "workstations" should be "workstation's".

SET VIEW REPRESENTATION, effect section, first paragraph, replace the final sentence with:

The X and Y portions of the 'requested view clipping limits' for the specified view are set to the specified values. The Z portion of the 'requested view clipping limits' is set to ZMIN=0 and ZMAX=1. The 'front clipping indicator' and the 'back clipping indicator' are set to CLIP.

SET VIEW REPRESENTATION, in error *150*, "workstations" should be "workstation's".

Page 169

Subclause 5.5.4

TRANSLATE 3, effect section, change

A 3D homogeneous transformation matrix...

to

A 4×4 transformation matrix...

Page 170

Subclause 5.5.4

TRANSLATE, effect section, change

A 2D homogeneous transformation matrix...

to

A 3×3 transformation matrix...

SCALE 3, effect section, change

A 3D homogeneous transformation matrix...

to

A 4×4 transformation matrix...

Page 171

Subclause 5.5.4

SCALE, effect section, change

A 2D homogeneous transformation matrix...

to

A 3×3 transformation matrix...

ROTATE X, effect section, change

A 3D homogeneous transformation matrix...

to

A 4×4 transformation matrix...

ROTATE Y, effect section, change

A 3D homogeneous transformation matrix...

to

A 4×4 transformation matrix...

Page 172

Subclause 5.5.4

ROTATE Z, effect section, change

A 3D homogeneous transformation matrix...

to

A 4 × 4 transformation matrix...

ROTATE, effect section, change

A 2D homogeneous transformation matrix...

to

A 3 × 3 transformation matrix...

COMPOSE MATRIX 3, effect section, change

The 3D homogeneous transformation matrix...

to

The 4 × 4 transformation matrix...

Page 173

Subclause 5.5.4

COMPOSE MATRIX, effect section, change

The 2D homogeneous transformation matrix...

to

The 3 × 3 transformation matrix...

Page 174

Subclause 5.5.4

BUILD TRANSFORMATION MATRIX 3, effect section, change

A 3D homogeneous transformation matrix...

to

A 4 × 4 transformation matrix...

Page 175

Subclause 5.5.4

BUILD TRANSFORMATION MATRIX, effect section, change

A 2D homogeneous transformation matrix...

to

A 3×3 transformation matrix...

COMPOSE TRANSFORMATION MATRIX 3, effect section, change

A 3D homogeneous transformation matrix...

to

A 4×4 transformation matrix...

Page 176

Subclause 5.5.4

COMPOSE TRANSFORMATION MATRIX, effect section, change

A 2D homogeneous transformation matrix...

to

A 3×3 transformation matrix...

Subclause 5.5.5

EVALUATE VIEW ORIENTATION MATRIX 3, in error *161*, insert a "," between the words "parallel" and "thus" so that it reads, "... normal vectors are parallel, thus the viewing coordinate ...".

EVALUATE VIEW ORIENTATION MATRIX, in error *161*, insert a "," between the words "parallel" and "thus" so that it reads, "... normal vectors are parallel, thus the viewing coordinate ...".

Page 194

Subclause 5.9

RETRIEVE PATHS TO ANCESTORS, effect section, insert the following after the second sentence of the first paragraph:

If the structure S does not have any ancestors, an empty path list is returned.

RETRIEVE PATHS TO ANCESTORS, insert error *404* as the second error.

RETRIEVE PATHS TO DESCENDANTS, effect section, insert the following after the second sentence of the first paragraph:

If the structure S does not have any descendants, an empty path list is returned.

Page 195

Subclause 5.9

RETRIEVE PATHS TO DESCENDANTS, insert error *404* as the second error.

Page 196

Subclause 5.9

DELETE ALL STRUCTURES FROM ARCHIVE, effect section, change the final sentence to read:

After the completion of this operation, the archive file will be empty, in the same state as an empty archive file which has just been opened.

Page 206

Subclause 5.10.2

INITIALIZE VALUATOR 3, remove the second occurrence of error *253* (between errors *260* and *261* in the list) in the list of errors.

Page 233

Subclause 5.12.3

INQUIRE PHIGS FACILITIES, change the fifth parameter to read

Out   list of available character sets   (0..n)   L(I)

Page 253

Subclause 5.12.5

INQUIRE STROKE DEVICE STATE 3, parameter list, "list of initial points in STROKE" should read "coordinates of initial STROKE".

Page 254

Subclause 5.12.5

INQUIRE STROKE DEVICE STATE, parameter list, "list of initial points in STROKE" should read "coordinates of initial STROKE".

Page 269

Subclause 5.12.6

INQUIRE TEXT EXTENT, parameter list, the "text extent rectangle" parameter description should include a designation of the TLC coordinate system.

Page 270

Subclause 5.12.6

INQUIRE TEXT EXTENT, effect section, delete the phrase "for TEXT PATHs RIGHT and LEFT," in the final sentence of the second paragraph ("This includes, ... character spacing parameter.").

Page 272

Subclause 5.12.6

INQUIRE EDGE FACILITIES, parameter list, the range for the "number of available edgetypes" parameter should be "(-n..-1,1..n)" rather than "(n..-4,4..n)".