AS 3732.1—1990
ISO/IEC 9592-1:1989

Australian Standard®

Computer graphics—Programmer's hierarchical interactive graphics system (PHIGS)

Part 1: Functional description

[ISO/IEC title: Information Processing Systems—Computer Graphics—Programmer's Hierarchical Interactive Graphics System (PHIGS)—Part 1: Functional Description]

STANDARDS AUSTRALIA

This Australian Standard was prepared by Committee IT/3, Computer Related Graphics. It was approved on behalf of the Council of Standards Australia on 25 July 1989 and published on 16 February 1990.

The following interests are represented on Committee IT/3:

ACADS

Association of Consulting Engineers, Australia

Australian Vice Chancellors Committee

Department of Defence

Royal Australian Institute of Architects

Telecom Australia

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First published as AS 3732.1—1990.

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY NSW
ISBN 0 7262 5869 5

PREFACE

This Standard was prepared by the Standards Australia Committee on Computer Related Graphics. It is identical with, and has been reproduced from International Standard ISO/IEC 9592-1: 1989, *Information processing systems—Computer graphics—Programmer's Hierarchical Interactive Graphics System (PHIGS)*—Part 1: *Functional description.*

For the purpose of this Australian Standard, the text of the ISO/IEC Standard should be modified as follows:

(a) *Terminology*—The words 'Australian Standard' should replace the words 'International Standard' wherever they apply.

(b) *References*—The references to International Standards should be replaced by references to Australian Standards as follows:

Reference to International Standard	*Australian Standard*
ISO	AS
646 Information processing—ISO 7-bit coded character set for information interchange	1776 Information processing—7-bit coded character set for information interchange
2022 Information processing—ISO 7-bit and 8-bit coded sets—Code extension techniques	1953 Information processing—ISO 7-bit and 8-bit coded character sets—Code extension techniques
7942 Information processing—Computer graphics—Graphical Kernel System (GKS) functional description	2880 Information processing—Computer graphics—Graphical Kernel System (GKS) functional description.
8632 Information processing systems—Computer graphics—Metafiles for transfer and storage of picture description information Part 1: Functional specifications Part 2: Character encoding Part 3: Binary encoding Part 4: Clear-text encoding	3603 Computer graphics—Metafiles for transfer and storage of picture description information Part 1: Functional specifications Part 2: Character encoding Part 3: Binary encoding Part 4: Clear-text encoding
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0 Introduction

The Programmer's Hierarchical Interactive Graphics System (PHIGS) provides a set of functions for

- definition, display and modification of 2D or 3D graphical data,
- definition, display and manipulation of geometrically related objects,
- modification of graphics data and the relationships between the graphical data.

This International Standard draws extensively on GKS (Graphical Kernel System ISO 7942) and GKS-3D (Graphical Kernel System for Three Dimensions ISO 8805) for its model and functionality. In addition this International Standard enables graphical (and application) data to be stored in a hierarchical data store. Information in the data store can be inserted, modified and deleted with the provided functions. The relationship of this part of ISO/IEC 9592 to GKS and GKS-3D is further described in 4.3.2.

The choice of which graphics standard to use will depend on a number of factors: application profile, overall system architecture, equipment available, existing application database interaction, system performance considerations, user interface requirements, management policy and other external factors. The aim of producing a compatible set of graphics standards in GKS, GKS-3D and PHIGS is to allow that choice to be made in the most flexible way.

The main reasons for introducing a standard in this area of computer graphics are

a) to allow application programs using dynamic hierarchical graphics to be easily portable between installations,

b) to aid the understanding and use of dynamic hierarchical graphics methods by application programmers;

c) to reduce program development costs and time; many of the functions currently performed by the application program will now be performed by PHIGS;

d) to serve manufacturers of graphics equipment as a guideline in providing useful combinations of graphics capabilities in a device.

To meet these objectives, a number of design principles were adopted: