

**Infotöötlussüsteemid. Raalgraafika. Graafikasüsteemi  
GKS keelesidemed. Osa 3: ADA**

**Information processing systems - Computer graphics -  
Graphical Kernel System (GKS) language bindings -  
Part 3: ADA**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

|                                                                                                                     |                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| See Eesti standard EVS-EN 28651-3:1999 sisaldab Euroopa standardi EN 28651-3:1992 ingliskeelset teksti.             | This Estonian standard EVS-EN 28651-3:1999 consists of the English text of the European standard EN 28651-3:1992.                  |
| Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.                                                  | This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation. |
| Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 18.08.1992. | Date of Availability of the European standard is 18.08.1992.                                                                       |
| Standard on kättesaadav Eesti Standardikeskusest.                                                                   | The standard is available from the Estonian Centre for Standardisation.                                                            |

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 35.060, 35.140

Võtmesõnad: ada, computer programs, data processing, graphic data processing, information interchange, programming (computers), programming languages,

### Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:  
Aru 10, 10317 Tallinn, Eesti; [www.evs.ee](http://www.evs.ee); telefon 605 5050; e-post [info@evs.ee](mailto:info@evs.ee)

### The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:  
Aru 10, 10317 Tallinn, Estonia; [www.evs.ee](http://www.evs.ee); phone 605 5050; e-mail [info@evs.ee](mailto:info@evs.ee)

EUROPEAN STANDARD

EN 28651-3:1992

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 1992

UDC 681.3.04:800.92

Descriptors: Data processing, graphic data processing, computer interfaces, graphical kernel system, programming languages, ADA

English version

**Information processing systems - - Computer  
graphics - Graphical Kernel System (GKS) language  
bindings - Part 3: Ada (ISO 8651-3:1988)**

Systèmes de traitement de l'information - - Infographie - Interfaces langage avec GKS - Partie 3: Ada (ISO 8651-3:1988) Graphische Systeme der Informationsverarbeitung - Sprachbindungen für das Graphische Kernsystem (GKS) - Teil 3: Ada (ISO 8651-3:1988)

This European Standard was approved by CEN on 1992-08-13. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 35 B-1050 Brussels

## **FOREWORD**

The Technical Board has decided to submit the

International Standard 8651-3:1988 "Information processing systems - Computer graphics - Graphical Kernel System (GKS) language bindings - Part 3: Ada"

for Formal Vote. The standard was accepted.

At present the Standard exists in the English and French versions only.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 1993 and conflicting national standards shall be withdrawn at the latest by February 1993.

According to the CEN/CENELEC Common Rules, the following countries are bound to implement this standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

## **ENDORSEMENT NOTICE**

The text of the ISO 8651-3:1988 was approved by CEN as a European Standard without any modification.

# INTERNATIONAL STANDARD

ISO  
8651-3

First edition  
1988-09-15



INTERNATIONAL ORGANIZATION FOR STANDARDIZATION  
ORGANISATION INTERNATIONALE DE NORMALISATION  
МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

## Information processing systems — Computer graphics — Graphical Kernel System (GKS) language bindings —

### Part 3 : Ada

*Systèmes de traitement de l'information — Infographie — Système graphique de base (GKS) —  
Interface langage —*

*Partie 3 : Ada*

Reference number  
ISO 8651-3 : 1988 (E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8651-3 was prepared by Technical Committee ISO/TC 97, *Information processing systems*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

ISO 8651 consists of the following parts, under the general title *Information processing systems — Computer graphics — Graphic Kernel System (GKS) language bindings* :

- *Part 1 : FORTRAN*
- *Part 2 : PASCAL*
- *Part 3 : Ada*

Annexes A to G are for information only.

| Contents                                                              | Page |
|-----------------------------------------------------------------------|------|
| 0 Introduction .....                                                  | 1    |
| 1 Scope and field of application .....                                | 2    |
| 2 References .....                                                    | 3    |
| 3 The Ada language binding of GKS .....                               | 4    |
| 3.1 Conformance .....                                                 | 4    |
| 3.2 Implications of the language .....                                | 4    |
| 3.2.1 Functional mapping .....                                        | 4    |
| 3.2.2 Implementation and host dependencies .....                      | 4    |
| 3.2.3 Error handling .....                                            | 4    |
| 3.2.4 Data mapping .....                                              | 5    |
| 3.2.5 Multi-tasking .....                                             | 6    |
| 3.2.6 Packaging .....                                                 | 6    |
| 3.2.7 Application program environment .....                           | 7    |
| 3.2.8 Registration .....                                              | 7    |
| 4 Tables .....                                                        | 8    |
| 4.1 Procedures .....                                                  | 8    |
| 4.2 Data Type Definitions .....                                       | 23   |
| 4.2.1 Abbreviations used in the data type definitions .....           | 23   |
| 4.2.2 Alphabetical list of type definitions .....                     | 23   |
| 4.2.3 Alphabetical list of Private type definitions .....             | 48   |
| 4.2.4 List of constant declarations .....                             | 50   |
| 4.3 Error codes .....                                                 | 51   |
| 4.3.1 Error Code Definition .....                                     | 51   |
| 4.3.2 Precluded error codes .....                                     | 52   |
| 5 Functions in the Ada Binding to GKS .....                           | 53   |
| 5.1 GKS Functions .....                                               | 53   |
| 5.2 Additional functions .....                                        | 91   |
| 5.2.1 Subprograms for Manipulating Input Data Records .....           | 91   |
| 5.2.2 GKS Generic coordinate system package .....                     | 94   |
| 5.2.3 GKS Generic list utility package .....                          | 95   |
| 5.2.4 Metafile function utilities .....                               | 97   |
| 5.3 Conformal Variants .....                                          | 97   |
| Annex A Compiled GKS Specification .....                              | 98   |
| Annex B Cross Reference Listing of Implementation Defined Items ..... | 148  |
| Annex C Example Programs .....                                        | 149  |
| C.1 Example Program 1 : STAR .....                                    | 149  |
| C.2 Example Program 2 : IRON .....                                    | 151  |
| C.3 Example Program 3 : MAP .....                                     | 157  |
| C.4 Example Program 4 : MANIPULATE .....                              | 159  |
| C.5 Example Program 5 : PROGRAM SHOWLN .....                          | 163  |
| Annex D GKS Multi-Tasking .....                                       | 167  |
| Annex E Unsupported Generalized Drawing Primitives and Escapes .....  | 172  |
| Annex F Metafile Item Types .....                                     | 175  |
| Annex G Index of GKS Functions .....                                  | 177  |
| G.1 GKS functions .....                                               | 177  |
| G.2 Ada procedures .....                                              | 181  |

This document is a preview generated by EVS

This page intentionally left blank



# **Information processing systems — Computer graphics — Graphical Kernel System (GKS) language bindings —**

## **Part 3 : Ada**

### **0 Introduction**

The Graphical Kernel System (GKS) (ISO 7942) is specified in a language independent manner and needs to be embedded in language dependent layers (language bindings) for use with particular programming languages.

The purpose of this part of ISO 8651 is to define a standard binding for the Ada computer programming language.

## **1 Scope and field of application**

ISO 7942 (GKS) specifies a language independent nucleus of a graphics system. For integration into a programming language, GKS is embedded in a language dependent layer obeying the particular conventions of that language. This part of ISO 8651 specifies such a language dependent layer for the Ada language.

## 2 References

ISO 7942, *Information processing systems — Computer graphics — Graphical Kernel System (GKS) functional description*.

ISO 8652, *Programming Languages — Ada*.