

Software Product Description

PRODUCT NAME: CADRA-III for VMS, Version 7.1

SPD 33.90.00

DESCRIPTION

This software product is developed by ADRA Systems, Inc. and furnished under Digital Equipment Corporation's Standard Terms and Conditions.

CADRA-III™ is specifically used by design and drafting professionals and features advanced graphics techniques to assist in the mechanical engineering process. CADRA-III provides an environment that utilizes techniques and terminology familiar to the design and drafting disciplines.

By providing direct and industry-standard translators for other CAD/CAM products, CADRA-III is complementary to existing CAD design environments.

CADRA-III has several options which extend its flexibility in the design and drafting area. These include CADRA-RASTER™, CADRA3D™, Autogeometry programming language and Adra Direct Translator (ADT)™ which provides the capability to transfer drawing files between an IBM® or IBM-compatible host running CADAM® software and a system running CADRA software.

CADRA-III Features

- Multiple, independently scaled views with up to 64 views per drawing. Each view has defined scale, angle position on the drawing, and a 3-D reference transformation.
- Auxiliary origins within a view that define alternate local transformations.
- Entity modes which provide a way to annotate geometry and enhance it as an engineering or drafting tool. These modes are: Model for geometry, View for text and dimensions, Draw for the drawing format, title blocks, text, revisions and notes.
- Layers to selectively display different parts of a drawing including geometry and colors. Up to 255 layers are available.
- Figures can be defined for graphics to be repeated in a drawing. Up to 64 figures may be defined in a drawing and up to 4,000 figures may be loaded for reference.

User Interface

- Provides a menu area which allows selection of top level functions, menu choices within functions, and one-level "undo" capability for many functions. Each menu, function and option has a prompt to help the user execute the procedure.
- A feedback area which provides information about the current file, view, current drawing status, operating node, system prompts, and messages.
- The Input Menu System provides numerous options when selecting entities or locating positions on the screen. These options are available in all functions requesting such input. Selection of single or multiple entities may use filters on the entity type or layer. Selection of multiple entities may also select entities in, out, or crossing a rectangular or polygon window, or all entities in the view. Locating a position may use the end, origin, or vertex of existing geometry. Locating a position may also use the intersection of entities, and may offset in X and Y from any of these positions.

Geometric Construction

CADRA-III drawings are made up of basic geometric elements like points, lines, curves, splines and ellipses.

Using a mouse along with the keyboard, the user may access the menus to create geometry at intersections, by tangents, projections, fillets or chamfers.

Advanced geometric construction includes offset and trimmed splines, linear and geometric spaced points, and circle and ellipse to spline conversion.

Lines, circles, splines and ellipses can be trimmed through a variety of functions.

CADRA-III supports 255 layers, overlays and the ability to merge existing drawings.

User selective line styles including: solid (default), dashed, centerline, phantom, construction lines, break-lines or a user definable font. Line weights can be light, medium or heavy. Up to 13 colors are available.

Views and Windowing

- Allows the creation of 64 multiple, independently-scaled views each with a local origin. Each view can be scaled or rotated and displayed as a true view, axonometric view, two-view or three-view projection, or associated view.
- As on the drafting board, views can be created through traditional geometric descriptions. Resultant geometry can be generated by projecting (either by two- or three-view projection) existing geometry in a new view.
- Can divide the screen into 8 separate windows allowing independent panning and zooming of each window. Views from one window can be moved and fit into other windows.

Dimensioning and Annotation

Dimensions can be in view (default) or draw mode. Dimension text size is independent of view scale. Each dimension (including the measurement, direction arrow, and extension line) is a single entity. It can be moved, copied, deleted and changed as a single unit.

Dimensions can be metric, English or both, and comply with ANSI (Y14.5-82M), ISO (including leader, chamfer, and oblique angle), JIS (Japanese Industrial Standards), BSI (British Institution Standard), and DIN (German Standards) dimensioning standards.

In CADRA-III the user can create:

- Horizontal, vertical, parallel, perpendicular, angular, radial, curve, spline, line to point, datum, coordinate and out-of-scale dimensions
- Tolerance Dimensions: Over/under, plus/minus and limited
- Fully integrated feature control symbols
- Dual and fractional dimensions

Dimension styles can be pre-set or changed for existing dimensions. Placement of dimensions is done by rubber-banding, allowing the user to see if the dimension will fit with the current parameter settings.

Full editing capabilities exist to globally update, convert, joggle, slant, size, angle and align dimensions and notes.

16 text fonts are available including Japanese font support.

Ability to input and export ASCII text data for annotations and notes.

User-definable text fonts can also be created.

Geometric Libraries

Commonly used 2D or 3D geometric assemblies can be saved as figure libraries which allow compliance with drafting standards. These figures can be inserted, referenced, deleted, rotated, mirrored and exploded among drawings. Figures can be internal to a drawing file or referenced to a figure stored in memory.

CADRA-III security can restrict read and write access to figure libraries.

Geometric Analysis

Calculation of 2D sectional properties like area, centroid, radius of gyration, moment, product and principal moments of inertia.

CADRA PLOT Features

- Full plot scaling and rotation is supported.
- Defines the plotter and its options in an interactive session as well as assigning pens for plotting weight or layers.
- Plots can be sent for immediate plotting or in off-line mode.
- Can plot in non-graphic mode, a rectangular portion of the drawing, or plot one drawing on top of another.

CADRA PLOT supports major plotters/printers including:

- Benson 16 Series
- Calcomp™ 925
- Calcomp 960
- Calcomp 1040 Series-PCI
- Calcomp Electrostatic
- Gerber Word Address Format
- Hewlett-Packard™ 7585
- Houston Instrument DMP-52
- KMW VP 10 - Versatec
- KMW VP 30 - Versatec
- PostScript® Format
- Restricted HPGL Format
- Versatec RPM 800 Series
- Versatec RPM 8000 Series

CADRA RASTER Features

- Provides the tools to develop complete and accurate CAD drawings from scanned images of conventional paper drawings.

- Works along with the design/drafting software to give advanced CAD features and Raster editing functions.
- Raster data can be edited with simple paint functions, or it can be erased and replaced with vector data, or it can trace the Raster data to create a vector-format drawing.
- Users can store the data in Raster, vector or hybrid (vector and Raster) form. These formats can be plotted and saved as CADRA-III drawings.
- Conversion from Raster to vector of just one portion of the drawing allows the user to concentrate on the areas which have changed. This accelerates Raster to vector conversion when only a small portion of the drawing has changed.
- Raster data can be copied, inverted, rotated, mirrored or merged.
- Raster data can be plotted with an electrostatic plotter.
- Scanned file can be de-skewed to correct alignment or de-speckled to remove imperfections. File can also be rotated 90, 180, or 270 degrees.
- Can convert vector-format drawings to raster-format files as necessary.
- Allows use of CADRA-III pan and zoom capabilities during Raster editing.
- Accept and edit Raster files from standard data formats including CCITT Group 3 and 4 and TIFF.
- The zoom can be set at a threshold so that the Raster data is no longer visible. A window which is zoomed out past the threshold setting will only display vector data. This helps to track the Raster to vector conversion process.

CADRA-3D Wireframe Features

- Supports the creating and editing of 3D wireframe models as an extension to CADRA-III design and drafting software.
- Work planes are defined to allow the creation of lines, points, circles, and splines. These may then be moved, trimmed and used to create 3D figures.
- Generates 2D views from 3D models coming from other wireframe based CAD systems via IGES or CADRA direct translators.
- The user can project entities from 2-D views to the 3-D; model view, project entities from the 3-D model view to a 2-D view or list of views.

CADRA-ADT

The Adra Direct Translator (ADT) option is complementary to the CADRA-III Design/Drafting by providing the links between CADRA-III and CADAM (Version 20.1 or higher) for the transfer of drawing files between an IBM or IBM-compatible host running CADAM software and a system running CADRA software.

Features

- Links CADAM (Version 20.1 and higher) systems with CADRA-III Design/Drafting Software, CADRA-RASTER, CADRA-VIEW and CADRA-NC.
- Supports MVS (TSO) and VM (CMS) operating systems.
- Provides bi-directional transfer via Ethernet or nine-track tape.
- Recognizes and accepts entities found in the 2 1/2 D module of CADAM software, including symbols, details, views, overlays and plot formats.
- Transfers multiple drawings of entire assemblies or single drawings of single parts.
- Translates data on workstations or PCs running CADRA-III software without burdening the IBM host.
- Supports standard CADAM Nurestor tape format for transferring information.

CADRA-III Autogeometry

The Autogeometry programming language option allows the user to customize CADRA-III Design/Drafting software for frequently-used design and drafting procedures. Macros can be created to generate a family of parts and repetitive tasks.

Features

- Customizes menus and function keys for application programs or frequently used command sequences.
- Provides FORTRAN-77-like programming syntax.
- Complete menu-driven edit, compile, debug, and test capabilities are included with Autogeometry.
- Includes over 100 functions for calculating geometry, accessing the database, and simulating input from the user.
- Contains full-editable sample programs for creating bills of material.
- Autogeometry "learn mode" captures a snapshot of the interactive session and records the FORTRAN-77-like commands as a text file. These command files can be edited and executed as command sequences.

- Programs may be saved as text files or library of programs with or without the original source.

CADRA-III DXF Features

- Provides the capability to read DXF files for exchanging data with 2D CAD systems including AutoCAD™ thereby allowing its coexistence with CADRA-III environment.
- Reads DXF input compatible with that produced by AutoCAD Versions 2.5 and 2.6 and Release 9.0 and produces DXF input compatible with that produced by AutoCAD Release 9.0.
- All DXF data is placed in the CADRA Top View.
- The 8 DXF colors are mapped to the closest currently defined CADRA colors.
- A log file is created for error messages.
- The DXF Blocks Section data is converted to CADRA figures with CADRA figure names that are the same as the DXF block names.

CADRA-III IGES

Provides the ability to read IGES files for exchanging data with other CAD/CAM systems.

HARDWARE REQUIREMENTS

Processors Supported

VAXstation 3100 Series

Processor Restrictions

A TK50 Tape Drive is required for standalone VAXstation 3100 processors.

Disk Space Requirements (Block Cluster Size = 1:)

Disk space required for installation:	45,000 blocks (22.5M bytes)
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Disk space required for use (permanent):	45,000 blocks (22.5M bytes)
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These counts refer to the disk space required on the system disk. The sizes are approximate; actual sizes may vary depending on the user's system environment, configuration, and software options.

Memory Requirements for DECwindows Support

The minimum supported memory for this application running in a standalone DECwindows environment with both the client and server executing on that same system is 12 Mbytes.

SOFTWARE REQUIREMENTS

For Workstations Running DECwindows:

VMS Operating System V5.0 - V5.4 (and the necessary components of VMS DECwindows)

VMS DECwindows is included in the VMS Operating System V5.x.

This product may run in either of the following ways:

- Standalone Execution - Running the X11 display server and the client application on the same machine.
- Remote Execution - Running the X11 display server and the client application on different machines.

VMS DECwindows is part of the VMS Operating System but must be installed separately. Installation of the VMS DECwindows gives you the option to install any or all of the following three components:

- VMS DECwindows Compute Server (Base kit; includes run-time support)
- VMS DECwindows Device Support
- VMS DECwindows Programming Support

For standalone execution, the following DECwindows components must be installed on the machine:

Server Machine

VMS DECwindows Compute Server

Client Machine

VMS DECwindows Compute Server

VMS DECwindows Device Support

GROWTH CONSIDERATIONS

The minimum hardware/software requirements for any future version of this product may be different from the minimum requirements for the current version.

DISTRIBUTION MEDIA

Tape: TK50 Streaming Tape

SOFTWARE LICENSING

This software is furnished under the licensing provisions of Digital Equipment Corporation's Standard Terms and Conditions. For more information about Digital's licensing terms and policies, contact your local Digital office.

SOFTWARE PRODUCT SERVICES

Services for this product can be purchased directly from ADRA Systems, Inc.

Please call ADRA Systems, Inc. Customer Services, 1-800-321-ADRA, or contact your local Digital office for more information.

Services for this product, CADRA-III and its options, are not offered by Digital.

SOFTWARE WARRANTY

CADRA-III and related optional software products are provided by Digital on an "**AS IS**" basis without warranty of any kind, either express or implied.

A standard ninety (90) day warranty is provided directly by ADRA Systems, Inc. Extended warranty is available from ADRA Systems, Inc. Please call ADRA's Customer Services, 1-800-321-ADRA or contact your local Digital office for more information.

This information is valid at time of release. Please contact your local Digital office for the most up-to-date information.

ORDERING INFORMATION

The base product, CADRA-III, and its options are orderable as packaged kits containing a single-use license, media and documentation. However, kits for CADRA-III are the only kits which contain media.

An Authorization Code Sheet (ACS) is also included with each kit. The ACS provides the information necessary for the customer to obtain the access code for the workstation on which the software will be installed.

Option Number	Description	TK50 Media	Documen- tation	ACS
QB-GFGAC-VA	CADRA-III	1	1	1
QB-GFGAC-VB	CADRA-III 5PK	1	5	5
QB-GFGAC-VC	CADRA-III 10PK	2	10	10
QB-GFGAC-VD	CADRA-III 20PK	4	20	20
QB-GFGAC-VE	CADRA-III 30PK	6	30	30
QB-GFGAC-VF	CADRA-III 40PK	8	40	40

Each of the following kits are sold as option(s) to CADRA-III, and contain a single-use license and documentation. Note that no media is included in the kits. Media is included only with the base product (CADRA-III).

Option Number	Description	Documen- tation	ACS
QB-GFJAC-VA	CADRA ADT Interface	1	1
QB-GFJAC-VB	CADRA ADT Interface 5PK	5	5
QB-GFJAC-VC	CADRA ADT Interface 10PK	10	10
QB-GFJAC-VD	CADRA ADT Interface 20PK	20	20
QB-GFJAC-VE	CADRA ADT Interface 30PK	30	30
QB-GFJAC-VF	CADRA ADT Interface 40PK	40	40
QB-GFLAC-VA	CADRA Autogeometry	1	1
QB-GFLAC-VB	CADRA Autogeometry 5PK	5	5
QB-GFLAC-VC	CADRA Autogeometry 10PK	10	10
QB-GFLAC-VD	CADRA Autogeometry 20PK	20	20
QB-GFLAC-VE	CADRA Autogeometry 30PK	30	30
QB-GFLAC-VF	CADRA Autogeometry 40PK	40	40

Option Number	Description	Documen- tation	ACS
QB-GFNAC-VA	CADRA 3-D Wireframe	1	1
QB-GFNAC-VB	CADRA 3-D WireFrame 5PK	5	5
QB-GFNAC-VC	CADRA 3-D WireFrame 10PK	10	10
QB-GFNAC-VD	CADRA 3-D WireFrame 20PK	20	20
QB-GFNAC-VE	CADRA 3-D WireFrame 30PK	30	30
QB-GFNAC-VF	CADRA 3-D WireFrame 40PK	40	40
QB-GFQAC-VA	CADRA IGES	1	1
QB-GFQAC-VB	CADRA IGES 5PK	5	5
QB-GFQAC-VC	CADRA IGES 10PK	10	10
QB-GFQAC-VD	CADRA IGES 20PK	20	20
QB-GFQAC-VE	CADRA IGES 30PK	30	30
QB-GFQAC-VF	CADRA IGES 40PK	40	40
QB-GFSAC-VA	CADRA Raster Editor	1	1
QB-GFUAC-VA	CADRA DXF Interface	0	1
QB-GFWAC-VA	CADRA Plot	0	1

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