



Am95C96

Optical Disk Controller

DISTINCTIVE CHARACTERISTICS

- Supports the proposed X3B11 and ISO Continuous Composite Servo standard
- User programmable disk formats
- Minimal Rotational Latency Read/Write Operations
- 1:1 Sector Interleave Read/Write Operations
- 20 MHz System Clock
- Up to 32 MHz NRZ Serial Disk Data
- High Level Command Set
- Supports Intelligent SCSI-type Interfaces
- On-chip Buffer Management
- Direct support of DRAM Buffer (up to 4 MBytes)

GENERAL DESCRIPTION

The Optical Disk Data Controller (ODC) is a highly programmable optical disk data format controller designed for use in both standard and custom applications. The device has been optimized for applications utilizing an embedded SCSI disk data manager, but it easily supports other intelligent proprietary interfaces as well.

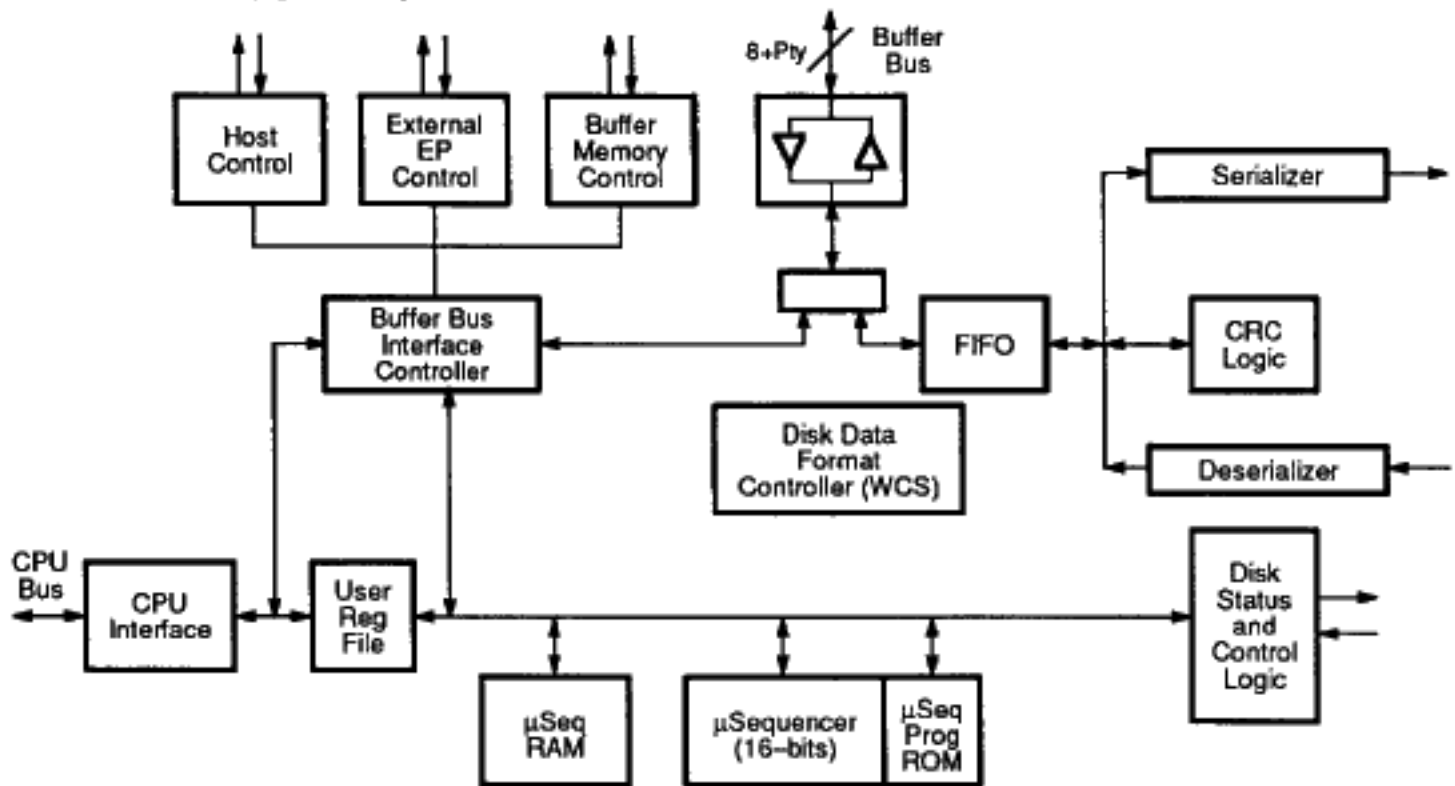
As an embedded controller, the ODC handles the timing of all disk read/write control signals, the transfer of NRZ data between the disk and buffer RAM, and the transfer of disk data between a parallel host interface and buffer RAM. The ODC performs all buffer management and arbitration associated with this transfer of data while maintaining data integrity by using a dedicated interface to an external, high performance Advanced Burst Error Processor (ABEP). In addition, the ODC can perform advanced data mapping operations during data transfer, simplifying the task of cache management. The ODC can handle up to 4 Mbytes of data buffer Dynamic RAM directly, including address multiplexing and refresh, with no external logic.

The ODC acts as an intelligent peripheral to a microprocessor or microcontroller. In an embedded SCSI disk

controller application, the control CPU (referred to in this document as simply the *CPU*), interprets all SCSI commands and controls disk head positioning and head selection, while the ODC handles all data transfers. The CPU sets up and initiates ODC operation by modifying as few as 6 ODC registers. ODC registers are directly addressable, and can be read or written directly with either an iAPX multiplexed address/data bus, or a Motorola 68xxx type non-multiplexed bus interface.

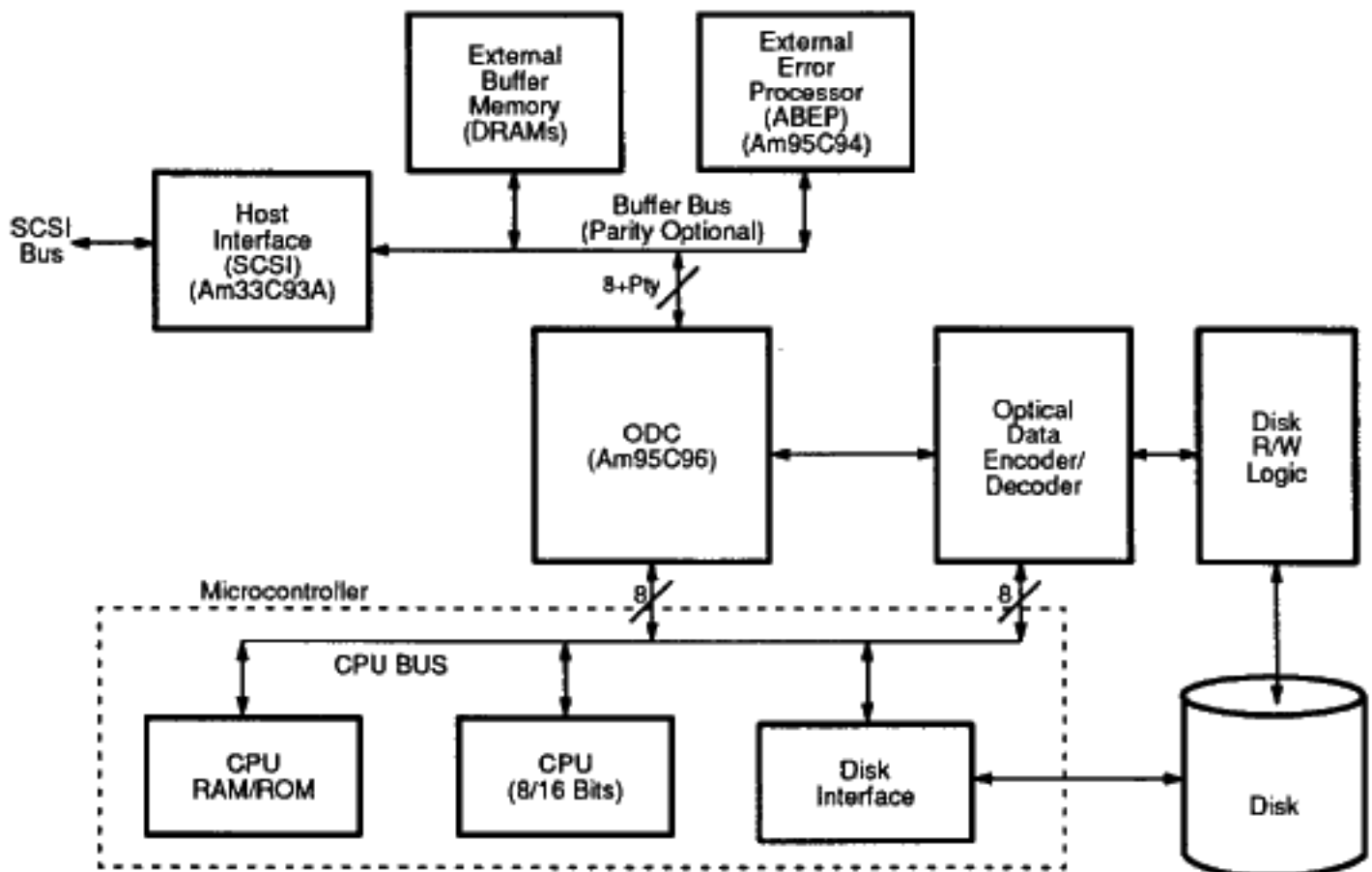
A dedicated interface to an external error processor permits the ODC to cope with the high error rates associated with optical media. Through this interface the ODC, in combination with AMD's Advanced Burst Error Processor (ABEP), can correct an error in as little as 10 μ secs. The ABEP supports 5 or 10 way interleaving with optional overlay CRC capability. The ABEP can correct up to 80 errors in a single sector in less than a millisecond. With this error correction capability, the ODC and ABEP can perform on-the-fly error correction without missing a sector. This avoids the necessity of jumping back to continue a disk read operation following a read error when handling spiral formatted media.

INTERNAL BLOCK DIAGRAM



10936-001A

SYSTEM APPLICATION

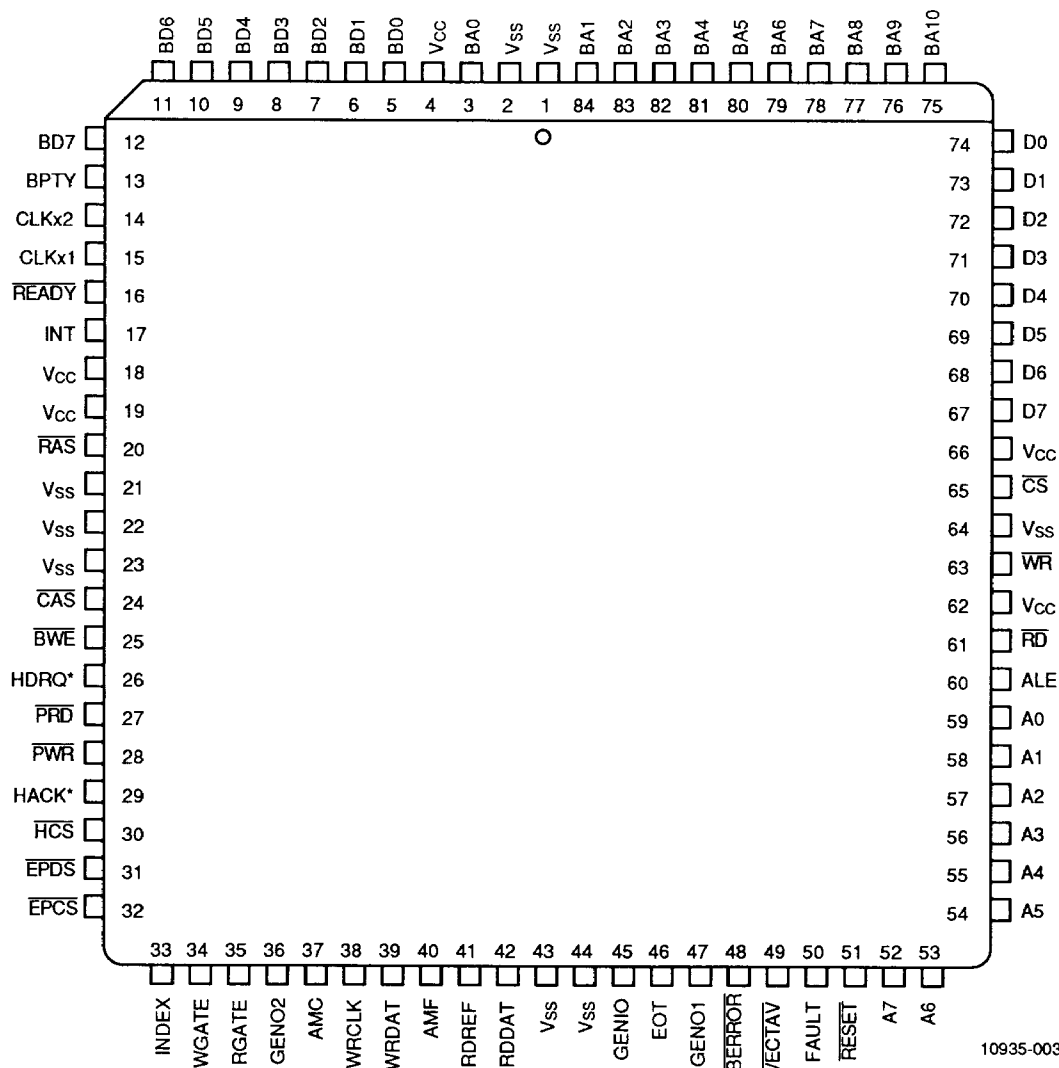


10936-002A

RELATED AMD PRODUCTS

Part Number	Description
Am33C93A	SCSI Controller
Am53C80	SCSI Controller
Am80188	Microprocessor
Am95C94	Advanced Burst Error Processor
Am80C188	CMOS Microprocessor

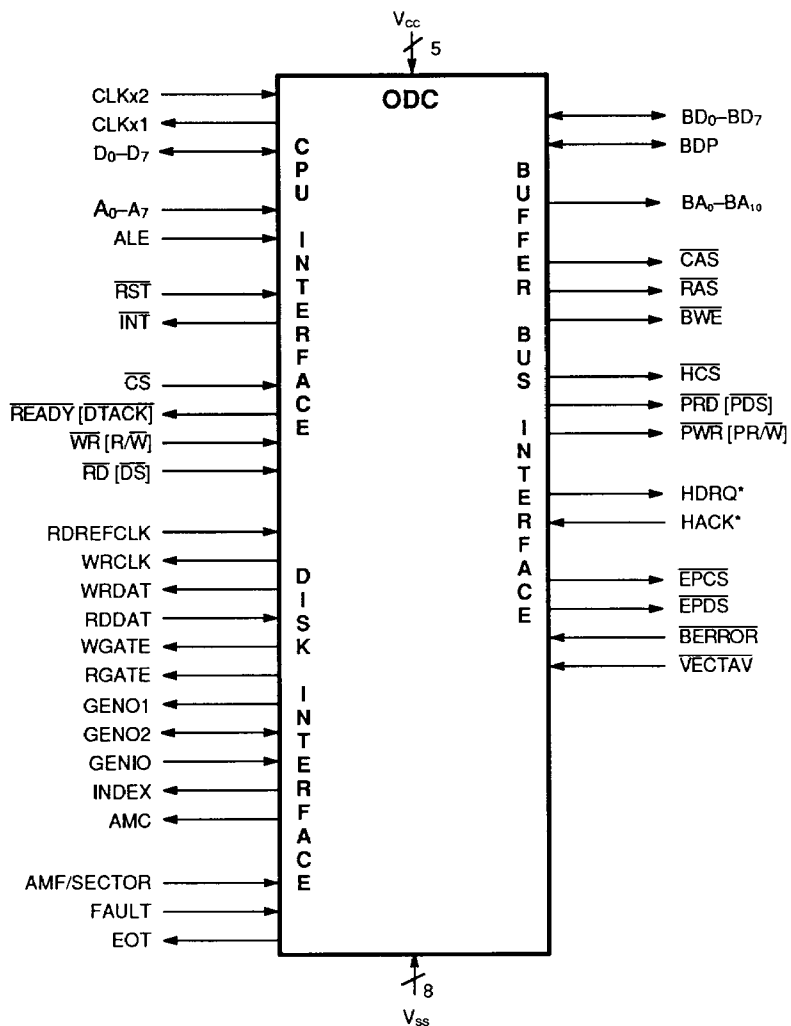
CONNECTION DIAGRAM



10935-003A

*These pins have programmable polarity.

LOGIC DIAGRAM



10936-004A

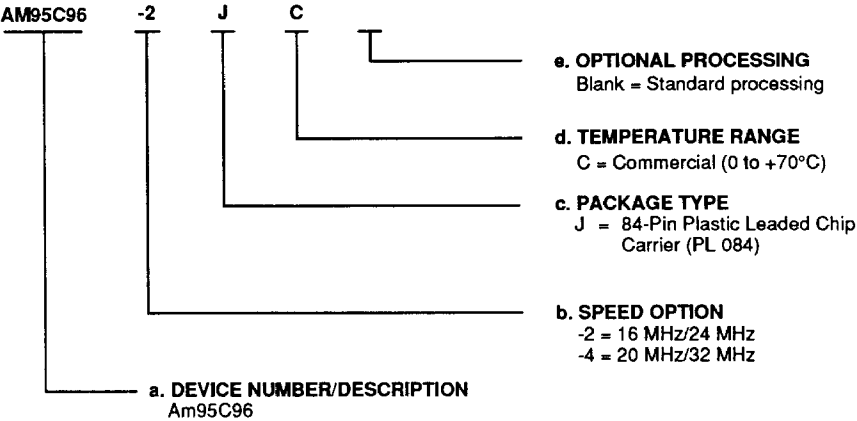
* These pins have programmable polarity

ORDERING INFORMATION

Standard Products

AMD standard products are available in several packages and operating ranges. The ordering number (Valid Combination) is formed by a combination of:

- a. Device Number
- b. Speed Option (If applicable)
- c. Package Type
- d. Temperature Range
- e. Optional Processing



Valid Combinations	
AM95C96-2JC	JC
AM95C96-4JC	

Valid Combinations

Valid Combinations list configurations planned to be supported in volume for this device. Consult the local AMD sales office to confirm availability of specific valid combinations, to check on newly released combinations, and to obtain additional data on AMD's standard military grade products.

Sales Offices

North American

ALABAMA	(205) 882-9122
ARIZONA	(602) 242-4400
CALIFORNIA,	
Culver City	(213) 645-1524
Newport Beach	(714) 752-6262
Roseville	(916) 786-6700
San Diego	(619) 560-7030
San Jose	(408) 452-0500
Woodland Hills	(818) 992-4155
CANADA, Ontario,	
Kanata	(613) 592-0060
Willowdale	(416) 224-5193
COLORADO	(303) 741-2900
CONNECTICUT	(203) 264-7800
FLORIDA,	
Clearwater	(813) 530-9971
Ft. Lauderdale	(305) 776-2001
Orlando (Casselberry)	(407) 830-8100
GEORGIA	(404) 449-7920
ILLINOIS,	
Chicago (Itasca)	(312) 773-4422
Naperville	(312) 505-9517
KANSAS	(913) 451-3115
MARYLAND	(301) 796-9310
MASSACHUSETTS	(617) 273-3970
MICHIGAN	(313) 347-1522
MINNESOTA	(612) 938-0001
NEW JERSEY,	
Cherry Hill	(609) 662-2900
Parsippany	(201) 299-0002
NEW YORK,	
Liverpool	(315) 457-5400
Poughkeepsie	(914) 471-8180
Rochester	(716) 272-9020
NORTH CAROLINA	(919) 878-8111
OHIO,	
Columbus (Westerville)	(614) 891-6455
Dayton	(513) 439-0470
OREGON	(503) 245-0080
PENNSYLVANIA	(215) 398-8006
SOUTH CAROLINA	(803) 772-6760
TEXAS,	
Austin	(512) 346-7830
Dallas	(214) 934-9099
Houston	(713) 785-9001

International

BELGIUM, Bruxelles	TEL (02) 771-91-42
	FAX (02) 762-37-12
	TLX 846-61028
FRANCE, Paris	TEL (1) 49-75-10-10
	FAX (1) 49-75-10-13
	TLX 263282F
WEST GERMANY,	
Hannover area	TEL (0511) 736085
	FAX (0511) 721254
	TLX 922850
München	TEL (089) 4114-0
	FAX (089) 406490
	TLX 523883
Stuttgart	TEL (0711) 62 33 77
	FAX (0711) 625187
	TLX 721882
HONG KONG,	
Wanchai	TEL 852-5-8654525
	FAX 852-5-8654335
	TLX 67955AMDAPHX
ITALY, Milan	TEL (02) 3390541
	(02) 3533241
	FAX (02) 3498000
	TLX 843-315286
JAPAN,	
Kanagawa	TEL 462-47-2911
	FAX 462-47-1729
Tokyo	TEL (03) 345-8241
	FAX (03) 342-5196
	TLX J24064AMDTKOJ
Osaka	TEL 06-243-3250
	FAX 06-243-3253

International (Continued)

KOREA, Seoul	TEL 822-784-0030
	FAX 822-784-8014
LATIN AMERICA,	
Ft. Lauderdale	TEL (305) 484-8600
	FAX (305) 485-9736
	TLX 5109554261 AMDFTL
NORWAY, Hovik	TEL (03) 010156
	FAX (02) 591959
	TLX 79079HBCN
SINGAPORE	TEL 65-3481188
	FAX 65-3480161
	TLX 55650 AMDMMI
SWEDEN,	
Stockholm	TEL (08) 733 03 50
(Sundbyberg)	FAX (08) 733 22 85
	TLX 11602
TAIWAN	TEL 886-2-7213393
	FAX 886-2-7723422
	TLX 886-2-7122066
UNITED KINGDOM,	
Manchester area	TEL (0925) 828008
(Warrington)	FAX (0925) 827693
	TLX 851-628524
London area	TEL (0483) 740440
(Woking)	FAX (0483) 756196
	TLX 851-859103

North American Representatives

CANADA	
Burnaby, B.C.	
DAVE TEK MARKETING	(604) 430-3680
Calgary, Alberta	
DAVE TEK MARKETING	(403) 291-4984
Kanata, Ontario	
VITEL ELECTRONICS	(613) 592-0060
Mississauga, Ontario	
VITEL ELECTRONICS	(416) 676-9720
Lachine, Quebec	
VITEL ELECTRONICS	(514) 636-5951
IDAHO	
INTERMOUNTAIN TECH MKTG, INC	(208) 888-6071
ILLINOIS	
HEARTLAND TECH MKTG, INC	(312) 577-9222
INDIANA	
Huntington - ELECTRONIC MARKETING	
CONSULTANTS, INC	(317) 921-3450
Indianapolis - ELECTRONIC MARKETING	
CONSULTANTS, INC	(317) 921-3450
IOWA	
LORENZ SALES	(319) 377-4666
KANSAS	
Merriam - LORENZ SALES	(913) 384-6556
Wichita - LORENZ SALES	(316) 721-0500
KENTUCKY	
ELECTRONIC MARKETING	
CONSULTANTS, INC	(317) 921-3452
MICHIGAN	
Birmingham - MIKE RAICK ASSOCIATES	(313) 644-5040
Holland - COM-TEK SALES, INC	(616) 399-7273
Novi - COM-TEK SALES, INC	(313) 344-1409
MISSOURI	
LORENZ SALES	(314) 997-4558
NEBRASKA	
LORENZ SALES	(402) 475-4660
NEW MEXICO	
THORSON DESERT STATES	(505) 293-8555
NEW YORK	
East Syracuse - NYCOM, INC	(315) 437-8343
Woodbury - COMPONENT	
CONSULTANTS, INC	(516) 364-8020
OHIO	
Centerville - DOLFUSS ROOT & CO	(513) 433-6776
Columbus - DOLFUSS ROOT & CO	(614) 885-4844
Strongsville - DOLFUSS ROOT & CO	(216) 238-0300
PENNSYLVANIA	
DOLFUSS ROOT & CO	(412) 221-4420
PUERTO RICO	
COMP REP ASSOC, INC	(809) 746-6550
UTAH, R ² MARKETING	(801) 595-0631
WASHINGTON	
ELECTRA TECHNICAL SALES	(206) 821-7442
WISCONSIN	
HEARTLAND TECH MKTG, INC	(414) 792-0920

Advanced Micro Devices reserves the right to make changes in its product without notice in order to improve design or perform characteristics listed in this document are guaranteed by specific tests, guard banding, design and other practices common to contact your local AMD sales representative. The company assumes no responsibility for the use of any circuits described.



Advanced Micro Devices, Inc. 901 Thompson Place, P.O. Box 3453, Sunnyvale, CA 94088, USA
Tel: (408) 732-2400 • TWX: 910-339-9280 • TELEX: 34-6306 • TOLL FREE: (800) 538-8450
APPLICATIONS HOTLINE TOLL FREE: (800) 222-9323 • (408) 749-5703

© 1989 Advanced Micro Devices, Inc.
8/89
Printed in USA