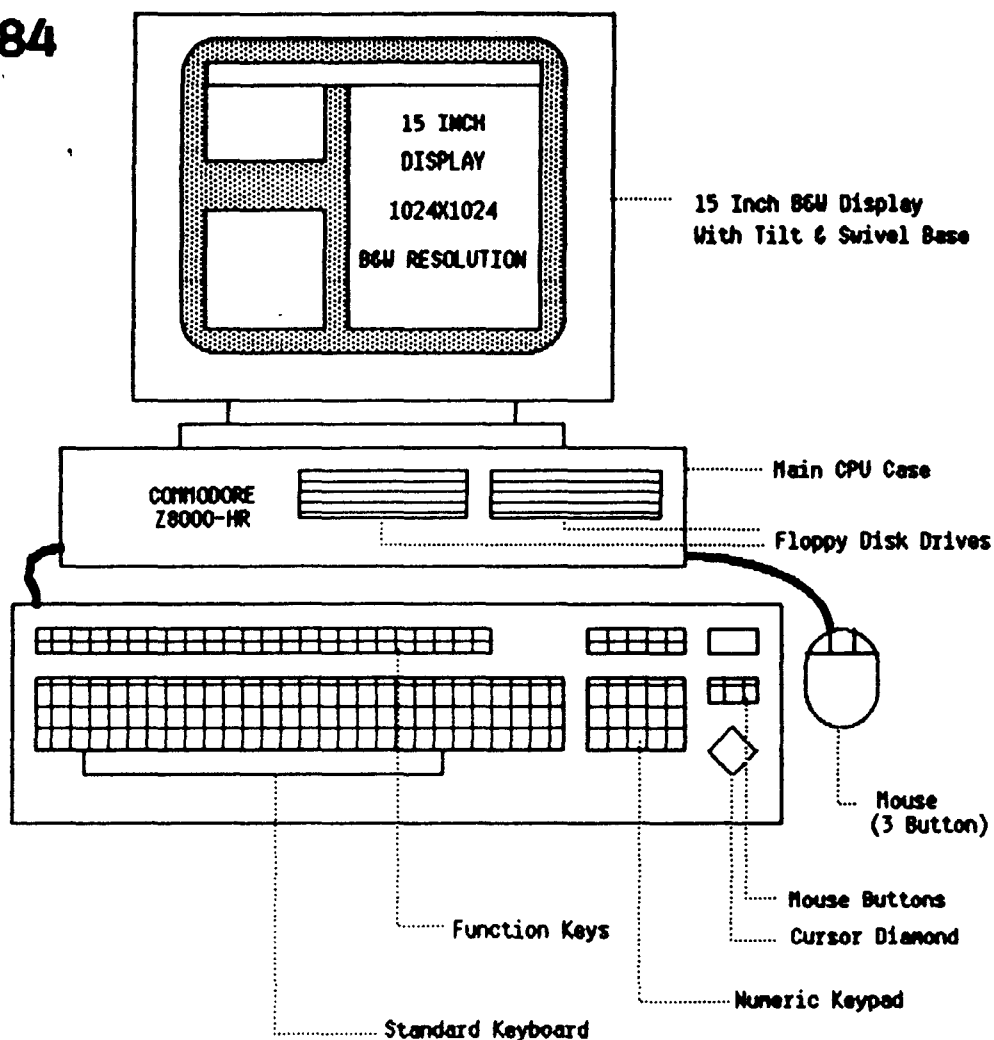


Commodore Z8000
System Family
August 15 1984

Product Description
Projected Cost
Engineering Schedules

COMMODORE Z8000-HR COMPUTER

JULY 20 1984



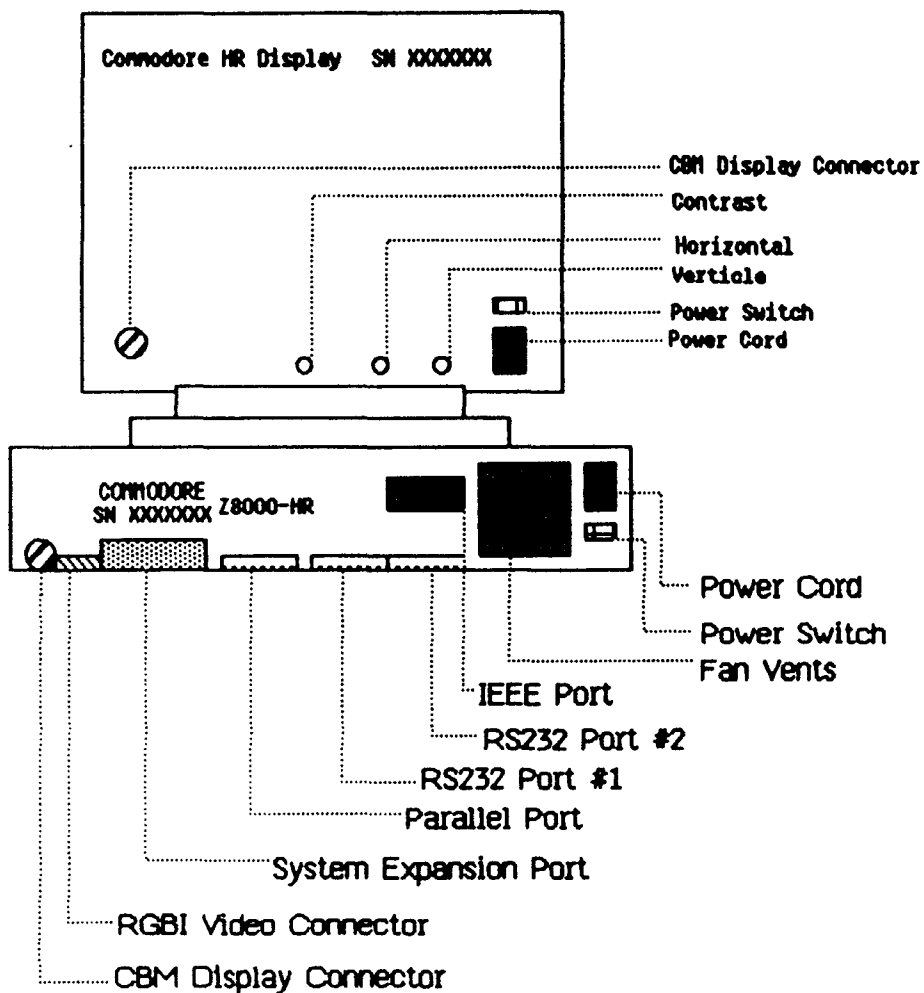
Model I

Hardware Includes

- Z80001 MPU + Z8010 MMU @ 6MHz
- 256Kbytes System RAM
- 128Kbytes Display RAM
- 64Kbytes System ROM
- 2 Floppy disk drive with 1.3Mbyte storage capacity each
- 15 Inch B&W display
- 2 RS232 Communication Ports
- Parallel Printer Port
- IEEE-488 Interface Port
- Mouse pointing device

Z8000-HR COMPUTER UNIT

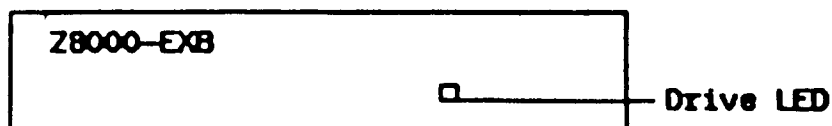
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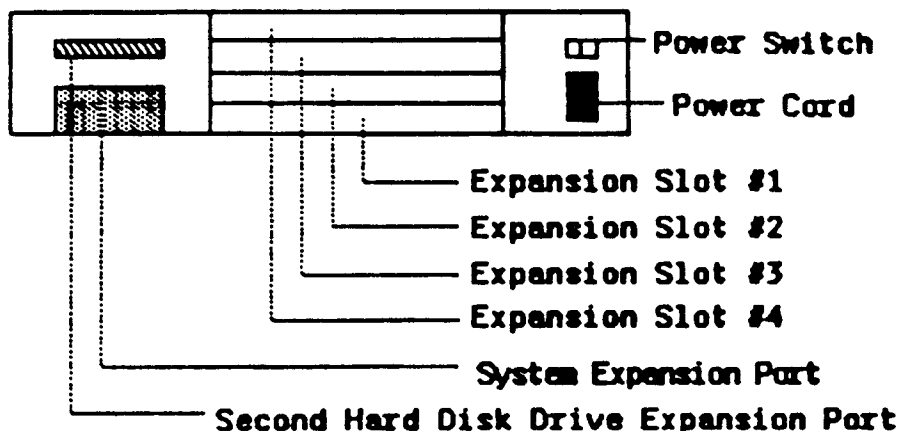
Z8000-EXB Expansion Unit and Expansion Options

AUGUST 15 1984

FRONT VIEW



BACK VIEW



Unit can fit above or below Z8000-HR main housing.

System Expansion Boards

At Release of Z8000-HR and Z8000-EXB:

Z8000-HD Hard disk option [10 Megabyte Hard disk]

Z8000-MEM [256-512 Kilobyte RAM expansion]

Z8000-MEM+ [512-2048 Kilobyte RAM expansion {256Kx1 RAMs}]

To be introduced thru 1985:

Z8000-HD#2 10 Megabyte Hard Disk Expansion

Z8000-LAN Local Area Network [1+ Megabit/Second Rate]

Z8000-MULTI Multi User Interface [Upto 8 Addition Users]

Z8000-CBS Hard Disk Cartridge Backup

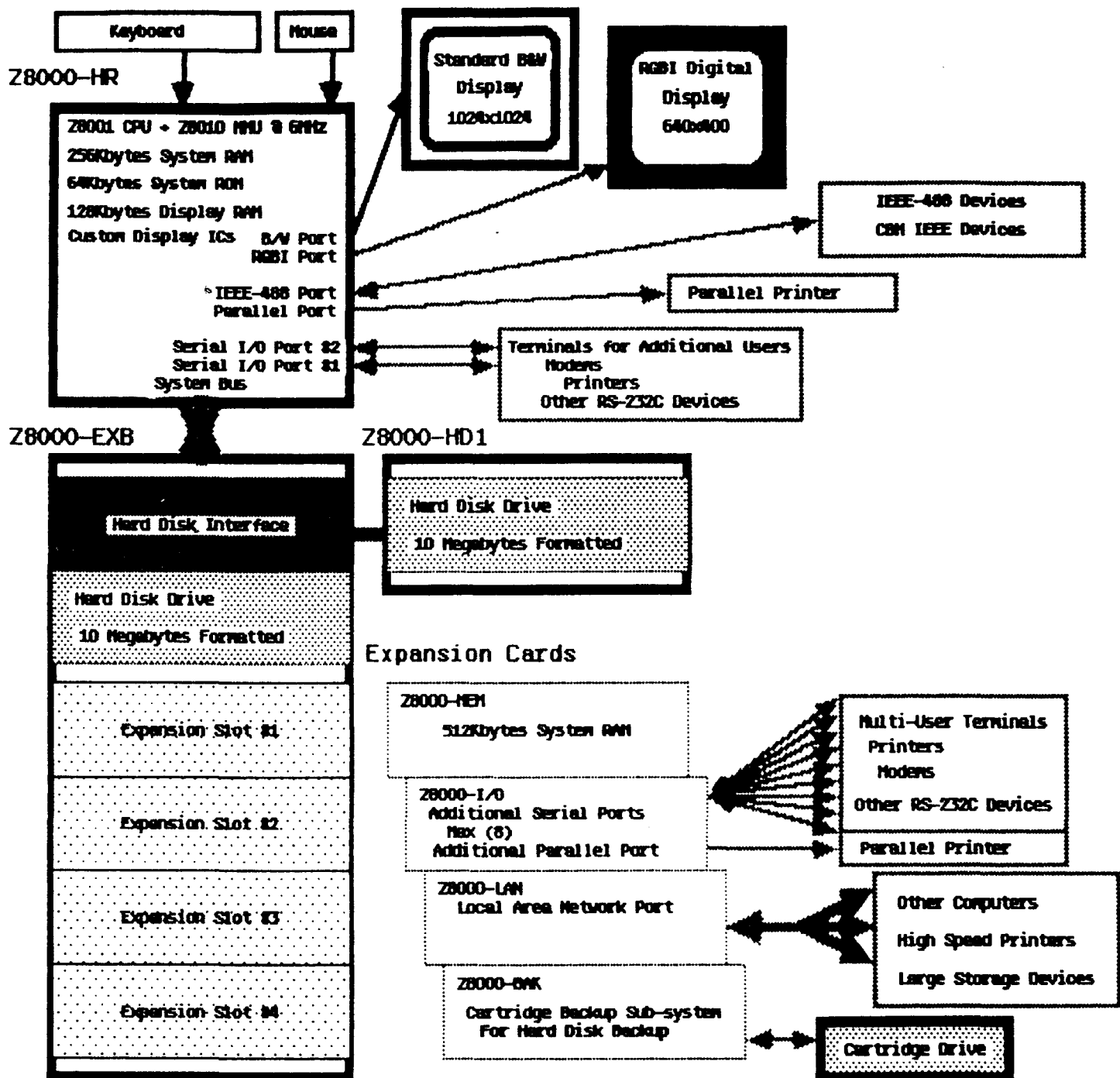
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

The Z8000-HD/HO#2 could offer 20 Megabyte drives

The Z8000-LAN could be a 10 Megabit/Second Network

Z8000 System Hardware Configuration

August 30 1984



-  ← A System Case. Self-contained power supply.
-  ← Optional PC Board, Requires Z8000-EXB.
-  ← Optional Devices that can connect to an interface port.

Note: Shaded areas detail optional features.

Commodore Z8000 System Family

Product Features August 15 1984

Z8000-HR Computer System

Processor Section: (6 Mhz operation)

High-speed Z8001 CPU and Z8010 MMU

Optional Z8070 APU Math Coprocessor

Memory:

256 Kilobytes of System and User RAM Standard

128 Kilobytes of Display RAM Standard

64 Kilobytes of ROM Standard

16 Megabytes of RAM/ROM Expansion Possible

Display:

1024x1024x1 Pixel, Monochrome 15 Inch Display

Optional 640x400x4 Pixel, RGBI Color 12 Inch Display

Keyboard:

100-key, Full ASCII detachable Euro-standard Keyboard

Special Cursor, Numeric, User, and Mouse keys.

Standard Interfaces:

IEEE-488 Standard (CBM standard also supportable)

Parallel printer port

Two (2) RS-232 ports (0-19,200 Baud, special to 1Mbit)

Optional I/O expansion thru Z8000-EXB Unit

Sound:

Simple tone generator and internal speaker.

Pointer Device:

Mouse or other pointer-type device for cursor movement

Mass Storage:

Two (2) 1.3 Megabyte Floppy drives standard (DMA)

Floppy capable of reading IBM PC formats.

Optional 10 Megabyte Hard Disk thru Z8000-EXB & Z8000-HD

Expansion:

Internal APU connector for Z8070 Option

System Bus connectors for Z8000-EXB Unit

RGBI Output connector for Color Display

Jumper block for conversion to 256Kx1 RAM devices

Software:

COHERENT (UNIX V7 Compatable) Operating System

CUSH - Commodore User Shell for novice users

Commodore Graphics Display Manager

Optional COHERENT Development Package

Commodore Z8000 System Family 8/15/84 RSR

Active Subsystem Projects 1984-1985

West Chester System Engineering

<u>Product</u>	<u>Description</u>	<u>Pilot</u>	<u>Manuf</u>
Z8000-EXB	Table-top Expansion Box	1/85	4/85
Requires:	Z8000-HR		
Includes:	4 I/O Expansion Slots		
	Hard Disk Option Slot		
	Cables for connection to Z8000-HR		
	Power Supply for Expansions		
Z8000-HD	10 Mega-Byte Hard Disk Option	1/85	4/85
Requires:	Z8000-EXB		
Includes:	10 MByte Formatted Hard Disk		
	Hard Disk Controller Boards		
	Cables for connection to Z8000-EXB		
	Support for 2nd drive and/or higher capacity drives		
Z8000-MEM	Memory Expansion Board	1/85	4/85
Requires:	Z8000-EXB		
Includes:	256-512 Kilo-Bytes RAM (Using 64Kx1 Technology)		
	1-2 Mega-Bytes RAM (Using 256Kx1 Technology)		
Notes:	Does <u>not</u> include or support error checking/correction		
Z8000-CD	12" RGBI Color Display Monitor	External Vendor	
Requires:	Z8000-HR		
Includes:	RGBI Display and Power Supply		
	Resolution of 640x400x4 Pixels/Colors		
	COHERENT Device Operating Software		
Notes:	Concurrent operation with 15" Display not available		

Commodore 28000 System Family

Future Enhancements 1985-

8/15/84 RSR

Product	Description	Pilot	Manuf
Z8000-HD#2	10 Mega-byte Hard Disk Expansion	2/85	5/85
Requires:	Z8000-HD		
Includes:	10 MByte Formatted Hard Disk Drive Cables to connect to Z8000-HD		
Notes:	Capacity could be greater than 10 MBytes Power supply may need to be increased in Z8000-HD		
Z8000-LAN/CBM	Local Area Network Expansion Option	4/85	6/85
Requires:	Z8000-EXB		
Includes:	1+ MegaBit/Second Network Interface Cables to connect to 2nd Z8000-LAN/CBM Unit COHERENT Device Operating Software		
Notes:	Speed of interface could change Can replace Hard Disk option in some installations		
Z8000-MULTI	Multi User Interface Board	2/85	5/85
Requires:	Z8000-EXB & Z8000-MEM		
Includes:	Up to 8 additional RS-232/423 ports An additional Centronics port		
Notes:	Additional users will slow the system response Additional memory may be required		
Z8000-APU	Arithmetic Processor Unit Option	4/85	6/85
Requires:	Z8000-HR		
Includes:	Z8070 APU unit on plug-in PCB COHERENT Device Support Software		
Notes:	Delivery depends upon Zilog production schedules		
Z8000-CBS	Hard Disk Backup Cartridge Option	4/85	6/85
Requires:	Z8000-HD		
Includes:	Cartridge tape storage system Interface board for Z8000-EXB Power Supply and Cables Cartridge tapes COHERENT Device Operating Software		
Notes:	Outside vendor may supply complete sub-system		

Commodore Z8000 System Family

Active Software Projects 1984-85

8/15/1984 RSR

<u>Product</u>	<u>Description</u>	<u>Pilot</u>	<u>Manuf</u>
COHERENT	Operating System for Z8000 Family	1/85	4/85
Requires:	Z8000-HR		
Includes:	UNIX Version 7 Compatable Operating Enviroment Standard COHERENT Bourne shell System maintaince Utilities Multi-Task support Multi-User support RS-232 and Centronics Printer drivers IEEE-488 support Keyboard and Pointer Device drivers Display drivers (1024x1024 B/W) RS-232 Terminal Device drivers Z8000-HD support		
Notes:	Delivery schedule depends on Mark Williams performace		
CUSH	Commodore Universal Shell	1/85	4/85
Requires:	COHERENT		
Includes:	Object orientated command and application selection Novice-user oriented Icons and pop-up menus Multiple tiled and overlayed application windows Application window-to-window communications		
Notes:	Advanced users may escape to COHERENT's SHELL		
SOFTWARE-D1	COHERENT Development Package	1/85	4/85
Requires:	COHERENT		
Suggested:	Z8000-EXB & Z8000-HD & Z8000-MEM (256K+)		
Includes:	'C' Language Compiler UNIX V7 compatable Libs Commodore Graphics Display Manager Lib Z8000 Assembler/Linker/Loader Software Complete set of COHERENT Utility programs		
Notes:	Extra cost part of Mark Williams contract (per copy)		
CGDM1.0	Commodore Graphics Display Manager	1/85	4/85
Requires:	COHERENT, SOFTWARE-D1 to developpe applications		
Includes:	Multiple display window capability Multiple character sets avaiable Graphics interface (Offers full/partial unit windows) Icon support and Cursor support (Character or Pixel)		
Notes:	Included with standard COHERENT for Z8000-HR		

Z8000 Project Engineering Schedules August 15 1984

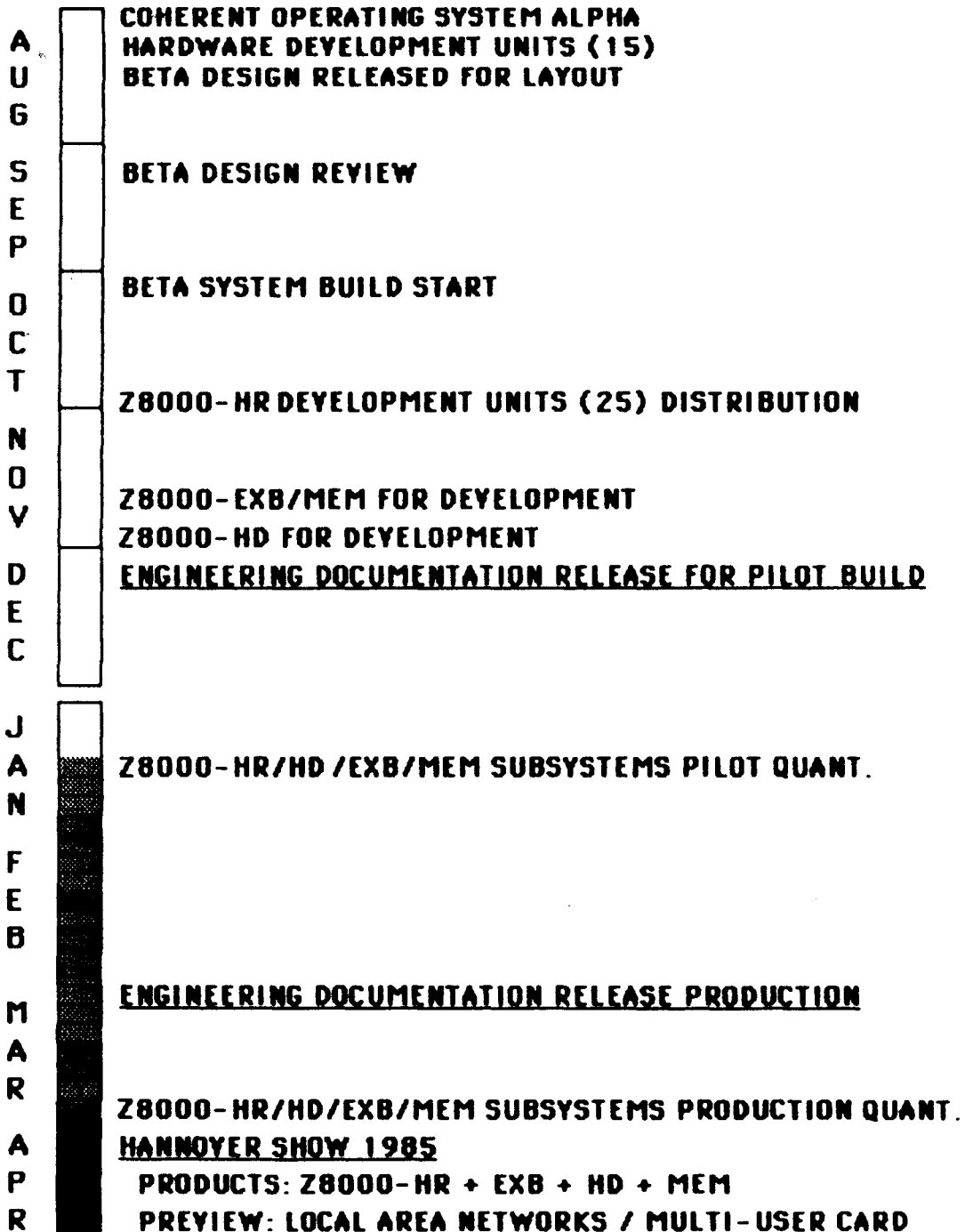
Z8000-HR Computer System

Z8000-EXB System Expansion Box

Z8000-HD Hard Disk Option

Z8000-MEM Memory Expansion Option

1984



KEY: ■ - PILOT ■ - PRODUCTION

CBM Only

Commodore Z8000 System Family

Product Feature Options August 15 1984

Z8000-HR Computer System

Processor Section: (6 Mhz operation)

Optional Z8070 APU Math Coprocessor board (By mid 1985)
[CBM cost ~\$100.00]

Memory:

Internal use of 256Kx1 RAMs will allow:

512 Kilobyte system [Extra cost ~\$176.00 early 85,
reducing to ~\$16 by early 86]{Design allows}

1024 Kilobyte system [Extra cost ~\$480 early 85,
reducing to ~\$160 by early 86]{Design allows}

Display:

If screen reduced to 720x720, display cost will be reduced, government approvals will be easier, visually the scrolling and graphics will appear to work faster, monitor cost will be reduced, but the resulting display will not be competitive in the near future (Apple and IBM have larger pixel count displays in their labs).

[Cost Reduction will be ~\$25]{Schedule reduction ~1-2 mth}

Mass Storage:

Remove one Floppy Disk, add 10 Megabyte hard disk drive and controller [Extra cost of ~\$345]{Case design impact, no schedule impact}

Software:

ANSI standard BASIC compiler [Extra cost of ~\$10]

CBM BASIC interpreter [Extra cost of ~\$15]

Integrated Business Package - Word processor, Spreadsheet, Database (simple) functions [Extra cost ~\$20]

Graphics support Package - Draw, Paint, Chart function [Extra cost of ~\$20]

Commodore Branded UNIX system V (Full AT&T UNIX) [Extra cost of ~\$60 plus 512Kbytes of RAM and 10 Mbytes of Disk storage required]

Note: All costs indicated are per unit, in 10K-100K unit volumes.

Commodore Z8000 System Family 8/15/84 RSR

Active Subsystem Projects 1984-1985

West Chester System Engineering

<u>Product</u>	<u>Description</u>	<u>Pilot</u>	<u>Manuf</u>
Z8000-EXB	Table-top Expansion Box	1/85	4/85
Requires:	Z8000-HR		
Includes:	4 I/O Expansion Slots		
	Hard Disk Option Slot		
	Cables for connection to Z8000-HR		
	Power Supply for Expansions		
Z8000-HD	10 Mega-Byte Hard Disk Option	1/85	4/85
Requires:	Z8000-EXB		
Includes:	10 MByte Formatted Hard Disk		
	Hard Disk Controller Boards		
	Cables for connection to Z8000-EXB		
	Support for 2nd drive and/or higher capacity drives		
Z8000-MEM	Memory Expansion Board	1/85	4/85
Requires:	Z8000-EXB		
Includes:	256-512 Kilo-Bytes RAM (Using 64Kx1 Technology)		
	1-2 Mega-Bytes RAM (Using 256Kx1 Technology)		
Notes:	Does <u>not</u> include or support error checking/correction		
Z8000-CD	12" RGBI Color Display Monitor	External Vendor	
Requires:	Z8000-HR		
Includes:	RGBI Display and Power Supply		
	Resolution of 640x400x4 Pixels/Colors		
	COHERENT Device Operating Software		
Notes:	Concurrent operation with 15" Display not available		

Commodore Z8000 System Family

Future Enhancements 1985-

8/15/84 RSR

Product	Description	Pilot	Manuf
Z8000-HD#2	10 Mega-byte Hard Disk Expansion	2/85	5/85
Requires:	Z8000-HD		
Includes:	10 MByte Formatted Hard Disk Drive		
	Cables to connect to Z8000-HD		
Notes:	Capacity could be greater than 10 MBytes		
	Power supply may need to be increased in Z8000-HD		
Z8000-LAN/CBM	Local Area Network Expansion Option	4/85	6/85
Requires:	Z8000-EXB		
Includes:	1+ MegaBit/Second Network Interface		
	Cables to connect to 2nd Z8000-LAN/CBM Unit		
	COHERENT Device Operating Software		
Notes:	Speed of interface could change		
	Can replace Hard Disk option in some installations		
Z8000-MULTI	Multi User Interface Board	2/85	5/85
Requires:	Z8000-EXB & Z8000-MEM		
Includes:	Up to 8 additional RS-232/423 ports		
	An additional Centronics port		
Notes:	Additional users will slow the system response		
	Additional memory may be required		
Z8000-APU	Arithmetic Processor Unit Option	4/85	6/85
Requires:	Z8000-HR		
Includes:	Z8070 APU unit on plug-in PCB		
	COHERENT Device Support Software		
Notes:	Delivery depends upon Zilog production schedules		
Z8000-CBS	Hard Disk Backup Cartridge Option	4/85	6/85
Requires:	Z8000-HD		
Includes:	Cartridge tape storage system		
	Interface board for Z8000-EXB		
	Power Supply and Cables		
	Cartridge tapes		
	COHERENT Device Operating Software		
Notes:	Outside vendor may supply complete sub-system		

Commodore Z8000 System Family

Active Software Projects 1984-85

8/15/1984 RSR

Product	Description	Pilot	Manuf
COHERENT	Operating System for Z8000 Family	1/85	4/85
Requires:	Z8000-HR		
Includes:	UNIX Version 7 Compatible Operating Environment Standard COHERENT Bourne shell System maintenance Utilities Multi-Task support Multi-User support RS-232 and Centronics Printer drivers IEEE-488 support Keyboard and Pointer Device drivers Display drivers (1024x1024 B/W) RS-232 Terminal Device drivers Z8000-HD support		
Notes:	Delivery schedule depends on Mark Williams performance		
CUSH	Commodore Universal Shell	1/85	4/85
Requires:	COHERENT		
Includes:	Object orientated command and application selection Novice-user oriented Icons and pop-up menus Multiple tiled and overlayed application windows Application window-to-window communications		
Notes:	Advanced users may escape to COHERENT's SHELL		
SOFTWARE-D1	COHERENT Development Package	1/85	4/85
Requires:	COHERENT		
Suggested:	Z8000-EXB & Z8000-HD & Z8000-MEM (256K+)		
Includes:	'C' Language Compiler UNIX V7 compatible Libs Commodore Graphics Display Manager Lib Z8000 Assembler/Linker/Loader Software Complete set of COHERENT Utility programs		
Notes:	Extra cost part of Mark Williams contract (per copy)		
CGDM1.0	Commodore Graphics Display Manager	1/85	4/85
Requires:	COHERENT, SOFTWARE-D1 to develop applications		
Includes:	Multiple display window capability Multiple character sets available Graphics interface (Offers full/partial unit windows) Icon support and Cursor support (Character or Pixel)		
Notes:	Included with standard COHERENT for Z8000-HR		

Z8000 Project Engineering Schedules August 15 1984

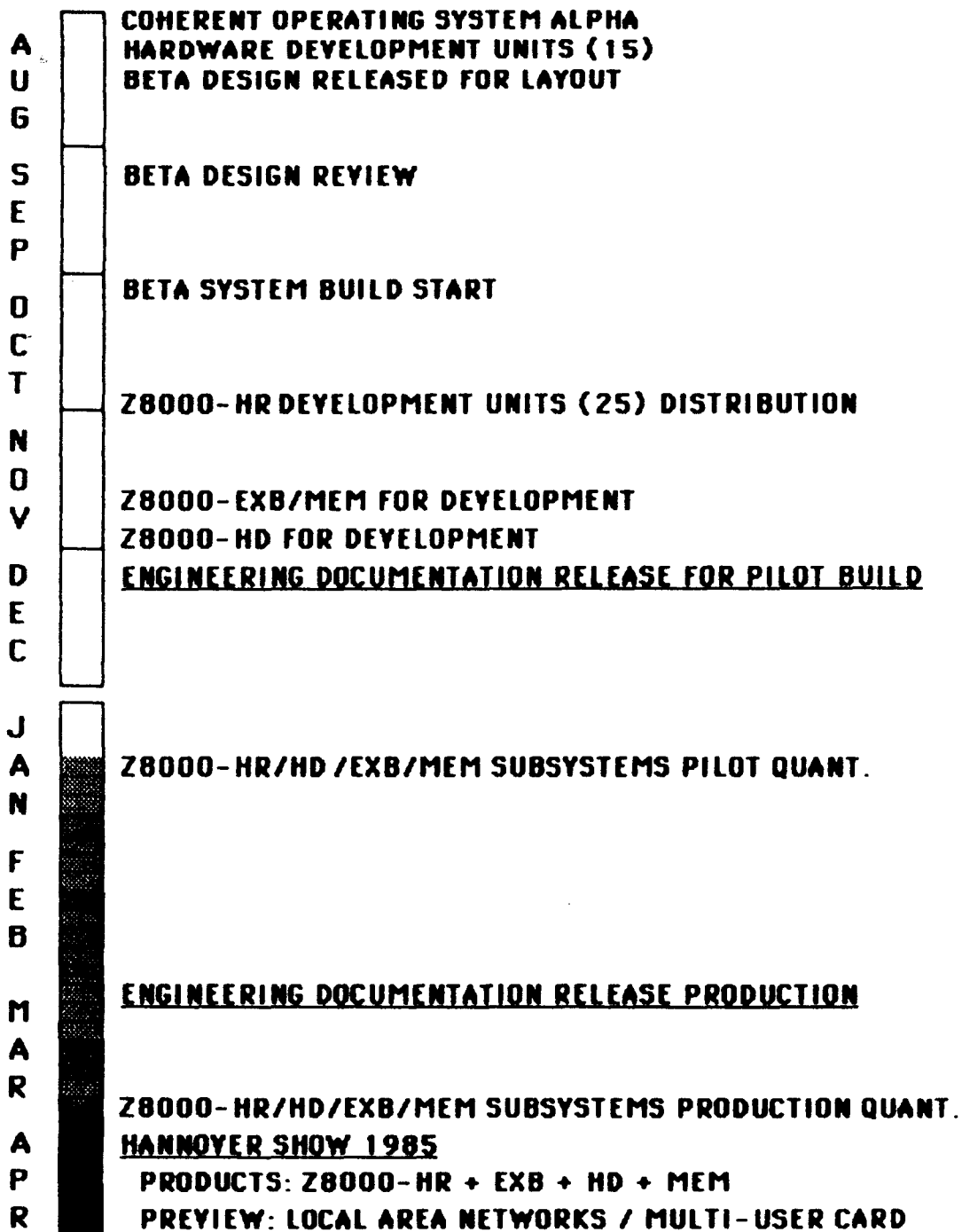
Z8000-HR Computer System

Z8000-EXB System Expansion Box

Z8000-HD Hard Disk Option

Z8000-MEM Memory Expansion Option

1984



1985

KEY: ■ - PILOT ■ - PRODUCTION