Micro Concepts

Image-10

Coprocessing Graphics Computer

Image-10 is a high performance single board computer optimised for graphics intensive applications.

Independent 16 bit processors dedicated to computation, graphics operations and display generation result in processing power and dazzling displays previously unobtainable at such low cost.

At the heart of Image-10 is Motorola's powerful 68010 microprocessor which supports system memory, floppy and Winchester discs, serial and parallel i/o, real time clock and sound generator.

Graphics and display processing are controlled concurrently by Intel's 82786 graphics coprocessor which performs all drawing operations in hardware giving extraordinary speed and flexibility.

- ★ 768 × 576 graphics resolution
- ★ 256 simultaneous on screen colours
- ★ High speed polygon and line drawing
- ★ High speed character drawing
- ★ Hardware windows
- ★ Bit block transfers
- ★ Smooth pan and scroll
- ★ Independent X/Y zoom

Image-10's impressive specification makes it an ideal candidate for applications that include:

- ★ Image processing
- ★ Graphic workstations
- ★ Arcade and video games
- ★ Evaluation
- ★ Education
- ★ Process control
- ★ Software development
- ★ Personal computing

MICRO CONCEPTS
2 St. Stephens Road, Cheltenham, Gloucestershire GL51 5AA
Telephone: (0242) 510525

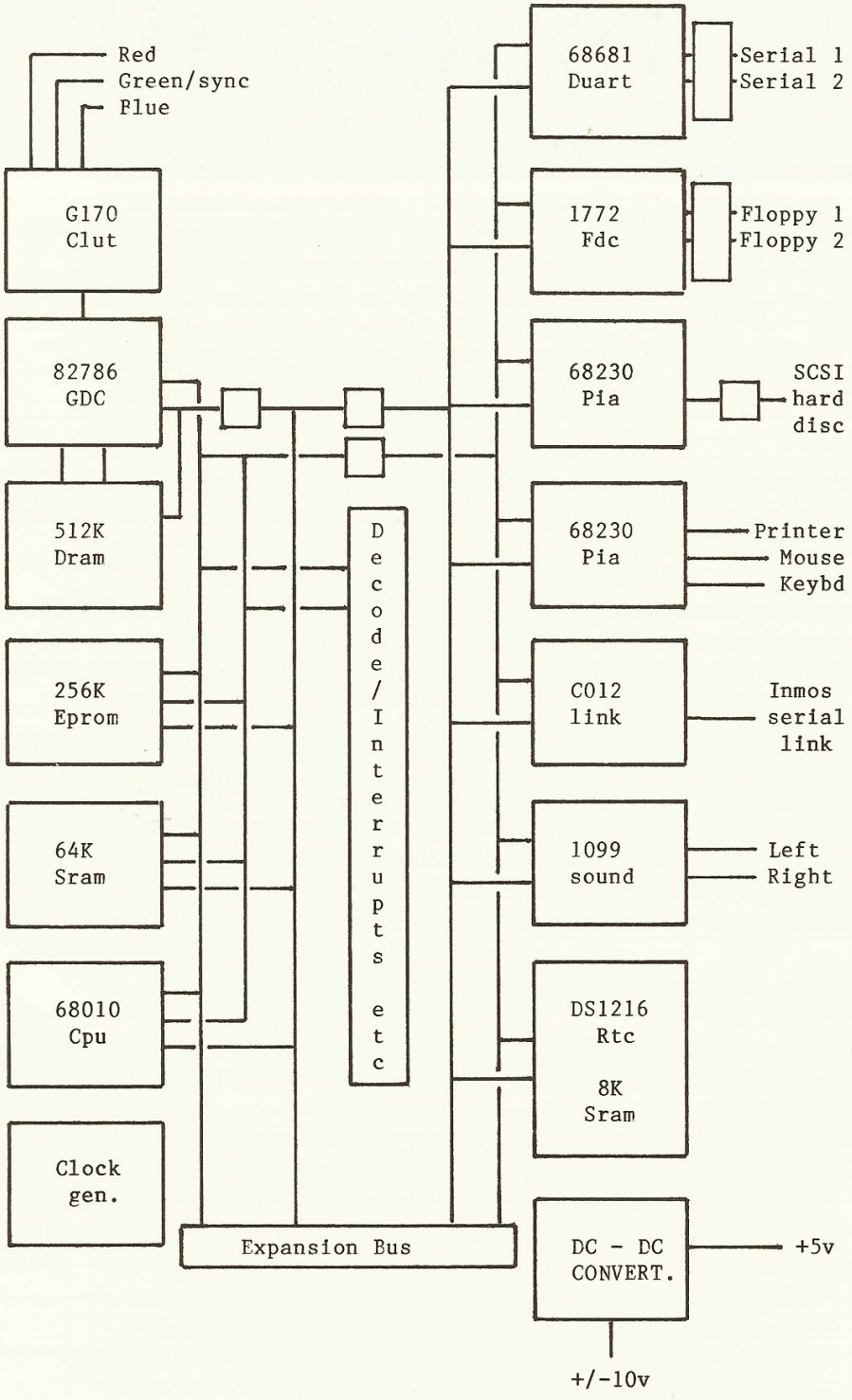

IMAGE-10 Block Diagram

The superb performance of Image-10 comes from the integration of Motorola's powerful 68010, arguably the best of the currently available 16 bit microprocessors, and Intel's impressive graphics coprocessor the 82786. Concurrent processing gives Image-10 the speed and flexibility previously available only in expensive workstations and dedicated graphics subsystems.

The 82786 contains two independent 16 bit processors.

A display processor controls video timing, window manipulation and video data serialisation from bit-map memory. Registers within the display processor are used to control X and Y zoom factors, cursor style and size, border colour, interlace display, etc.

A graphics processor executes instructions from a graphics command list that is placed in memory by the 68010 cpu. The graphics processor has its own instruction set and can draw graphical objects and text at high speed.

Graphics processor instruction set

Opcode	Param1 Param2 . . . . .
NOP	
LINK	Addr-lo Addr-hi
INTR_GEN	
DUMP_REG	Addr-lo Addr-hi RegID
LOAD_REG	Addr-lo Addr-hi RegID
ENTER_MACRO	Addr-lo Addr-hi
EXIT_MACRO	
HALT	
DEF_BIT_MAP	Addr-lo Addr-hi Xmax Ymax Bits/Pel
DEF_CLIP_RECT	Xmin Ymin Xmax Ymax
DEF_COLOURS	Foreground Background
DEF_TEXTURE	Line-style
DEF_LOGICAL_OP	Colour_bit_mask Logical_op
DEF_CHAR_SET	Addr-lo Addr-hi
DEF_CHAR_ORIENT	Path/Rotation
DEF_CHAR_SPACE	Inter-character-spacing
ABS_MOV	Xcoord Ycoord
REL_MOV	dX dY
ENTER_PICK	
EXIT_PICK	
POINT	dX dY
INCR_POINT	Array-lo Array-hi # Points
LINE	dX dY
CIRCLE	Radius
RECT	dX dY
POLYLINE	Array-lo Array-hi # Lines
POLYGON	Array-lo Array-hi # Lines
ARC	dXmin dYmin dXmax dYmax Radius
HORIZ_LINES	Array-lo Array-hi # Lines
BIT_BLT	SourceX SourceY dX dY
BIT_BIT_M	Addr-lo Addr-hi Xmax Ymax Xcoord Ycoord dX dY
CHAR	String-lo String-hi # Characters

Image-10 Specification

Processor:	MC68010 16/32 bit microprocessor operating at 8Mhz.
Interrupts:	6 levels which can be redefined by on board links.
Memory:	512K bytes of dram. 64K bytes of fast static ram. 256K bytes of eprom. 8K bytes battery backed ram.
Mass storage:	WD1772 floppy disk controller supporting two double sided, double density 80 track drives. SCSI interface supporting a Rodime RO652 3.5 inch 20M byte Winchester disk drive.
Video:	Intel 82786 graphics coprocessor operating at 16Mhz. IMS G170 colour look-up table. Maximum horizontal resolution — 768 pels. Maximum vertical resolution — 576 pels. Colours — 2, 4, 16 or 256 from a palette of 256K. Text supported up to 96 columns of 52 characters. All graphics primatives generated in hardware. Output is standard RGB at 1 volt into 75 ohms.
Serial ports:	MC68681 DUART providing two independent RS232 input output ports. Programmable baudrates may be set from 50 to 34.8K baud. IMSCO12 link adaptor provides serial data transfers at 20M bits/sec.
Parallel ports:	Two MC68230's provide 6 byte wide programmable input/output ports with handshaking plus two 24 bit timer/counters. Some of the ports are allocated for fixed functions, i.e: SCSI interface, printer, etc.
Sound:	SAA1099 stereo sound generator with 6 frequency generators, 2 noise generators, 6 mixers and 12 amplitude controllers. Output is 200mV into 10K.
RTC:	DS1216 battery backed real time clock and calendar. Supports 8K bytes of CMOS static ram with battery backup. The access method ensures very high data integrity.
Expansion:	A full 16 bit buffered expansion bus is available via a standard 96 way DIN indirect connector. On board headers are provided for future memory expansion whilst still maintaining a single board format.
Physical details:	The board is 235 × 220mm double eurocard format. On board are a 34 way floppy disc connector and a 50 way Winchester disk connector. A 96 way DIN indirect connector carries the system expansion bus. A 64 way DIN indirect connector carries the serial, parallel, sound and video ports.
Power requirements:	The board requires 5 volts at 1.5 amps only. An on board DC/DC convertor generates the + / – voltages required for the RS232 ports.

Prices

Image-10 fully built and tested board	**£1295**
Image-10 packaged system with dual 3.5 inch floppy drives	**£1995**
Image-10 packaged system with 20M byte hard disk and floppy drives	**£2695**

Micro Concepts