

COLEX PRODUCTS

STD

SYSTEMS

CPUE	Sceptre -820 - CP/M 3.0
CPU2	-850 - CP/M 3.0
256DRAM	-3200 - UNIX
FLPX	
SASI	Desktop Floppy/Hard disk
PI02	computers with up to
SI04	1.5 MB memory. Ten slot
PSIO	card cage.
Words	
68000	
CRT	
Slave (280 + RAM + SCC)	

NEW PRODUCTS

SI05  
IGDC  
Many more  
plus a VME card set and UNIX computer."

All data sheets, manuals and brochures will be  
ready for the Systems 83.

P. Russell

60000. } 2MB/ste  
MMU.

29-aug-83

std bus brochure

TITLE

COLEX Sceptre Family

STD bus board and system products

Short form catalog

Welcome to the COLEX family of STD bus products. COLEX is a leader in high quality, volume-produced, cost-effective STD cards. The STD card is the system-level component of choice for designers who value their time and prefer to add value to their own system products in software and marketing. COLEX specializes in producing STD bus cards in volume for the world-wide STD bus market. Our designs are carefully executed, with attention to manufacturability. Our quality control procedures, burn-in, double testing, sample lot testing, and raw material control assure you of a trouble-free and the reliable end product, yet we save you the cost of these controls, as well as inventory costs, purchasing headaches, and labor or sub-contractor management.

Collectively COLEX has decades of STD bus, 280, and software experience. But we are not limited to the 8 bit world. Our new designs include 68000 and 8088 processors which allow an increase in system performance without major impact on system cost. Also, we believe in software support for our hardware. The tools you need to develop your products are available from COLEX, from turnkey design stations to assemblers, high level languages, and operating systems you can typically adapt yourself to match a specific need.

Since our product line is rapidly growing, this catalog can only give you an idea of our present product spectrum. We hope to hear from you for your special needs as the card function you need may already be in design at COLEX.

## STD bus

The STD bus was first released in 1978. Essentially an accepted standard of the American IEEE (P691), the bus forms the basis of the highest volume standardized bus card family today. Advances in technology have allowed significantly increased densities on the basic card so that now the COLEX computer can be built with 4 times the memory in less than half the space of an equivalent machine built only 2 years ago. COLEX also has made significant innovations in proprietary logic to expand the bus into 16 bit applications without affecting STD bus compatibility. New products now in design will further expand the STD bus' capabilities.

The COLEX 68000 card is one example of advanced technology. With this card, the system can be upgraded to full single user UNIX or CP/M-68K. This adds a significant increase in performance without loss of the cost savings of the STD bus concept. The COLEX design of the 68000 and 256k RAM cards allow 16 megabytes of data to be addressed on the STD bus, which previously allowed only 64k.

## PROCESSOR FUNCTIONS

### STD-CPUE

Low cost Z80 CPU card. Provides system control functions and RAM or EPROM storage for dedicated applications. The card can store up to 48K bytes of RAM or 64K bytes of EPROM. It can control COLEX bank switching memory cards for expansion of the total memory space to 16 megabytes maximum.

#### Features:

Processor	Z80 at 2.5 or 4.0 MHz
On-board memory	6 JEDEC sockets, accessible by DMA
Off-board memory	up to 16 Megabytes, refresh supplied
Reset start address	Phantom prom allow any address to be used
Dynamic memory mapping	yes, including MEMEX support, uses PROM
Software support	CP/M 3.0

### STD-CPU2

CPU card with EPROM sockets and 4 channel counter timers. Provides all system control functions and RAM or EPROM storage. The card can store up to 48K bytes of RAM or 64K bytes of EPROM. It can control COLEX bank switching memory cards for expansion of the total memory space to 16 megabytes maximum.

#### Features:

Processor	Z80 at 2.5 or 4.0 MHz
On-board memory	6 JEDEC sockets, accessible by DMA
Off-board memory	up to 16 Megabytes, refresh supplied
Reset start address	Phantom prom allow any address to be used
Dynamic memory mapping	yes, including MEMEX support, uses PROM
I/O	4 fully buffered, programmable Z80-CTC channels
Software support	CP/M 3.0

## STD-SLAVE

The Slave card offers multiprocessing for the STD bus. It has two major applications. It can be used as an intelligent I/O controller, or it can be used as a dedicated general purpose CP/M processor. The card's bus interface is simple and lends itself towards high speed transfer to or from the slave, without consuming address space.

### Features:

Processor	Z80 at 4.0 MHz
On-board memory	64kb dynamic RAM
STD bus interface	4 programmable I/O ports, 4.0 MHz
Reset start address	Phantom prom allows any address to be used
I/O	2 Multiprotocol RS232 ports, software baud rates
Software support	in development

## STD-68000

Full 68000 programming power with a Z80 interface for low cost system construction. This combination allows new investments in software to have a longer life than with 8 bit processors. It opens up the use of high level languages for faster program completion. It can be used with cards designed for STD-Z80 bus systems, interrupts and processor sourced refresh are designed to match the Z80 system concept.

### Features:

Processor	68000 at 4.0 or 8.0 MHz
On-board memory	1 2732 socket for bootstrapping
STD bus interface	8 bit, Z80 compatible, always 4.0 MHz
Off-board memory	up to 16 Megabytes, refresh supplied
Reset start address	Phantom prom allows any address to be used
Software support	UNIX CP/M 68000

## I/O FUNCTIONS

### STD-PSIO

For combined serial and parallel I/O on a single card, the STD-PSIO offers the widest choice of programming options. It's Z80-SCC supports all major serial protocols, the Z80-CIO can be programmed for TTL buffered I/O and/or for counter/timer applications. Usable as Centronics interface.

#### Features:

Serial I/O	2 RS232 ports with external clock options and software programmable baud rates
Parallel I/O	20 bits of TTL buffer I/O, programmable for input or output, 3 16 bit counter timers
STD bus interface	8 I/O ports, user programmable addresses 4.0 MHz
Software support	CP/M 3.0 UNIX CP/M 68000

### STD-SIO4

Four channels of multiprotocol serial I/O on one card for high density communications control applications. Uses the Z80-SCC chip for support of most common coding methods and high speed operation. Also support on board software programmable baud rates or external baud rates.

#### Features:

Serial I/O	4 RS232 ports with external clock options and software programmable baud rates
STD bus interface	8 I/O ports, user programmable addresses 4.0 MHz

### STD-PIO2

Forty eight bits of programmable TTL buffered I/O, plus 6 counter timer channel on one card. For a wide range of applications for the STD bus computer control of on-line processes. Can also interface to Centronics printers.

#### Features:

Parallel I/O	40 bits of TTL buffer I/O, programmable for input or output. 3 16 bit counter timers.
STD bus interface	8 I/O ports, user programmable addresses 4.0 Mhz

## STD-FLP2

This product interfaces the STD bus to up to 4 floppy disk drives. It supports both 5.25 and 8 inch drives, with high quality data separation plus DMA transfer of data. A DMA daisy chain allows for multiple cards in one system.

### Features:

Controller Type	WD 1797
DMA type	Z80-DMA
Drives supported	8, 5.25 inch, software programmable
Recording method	Single or double density
STD bus interface	8 I/O ports, user programmable addresses 4.0 MHz
Software support	CP/M 3.0 UNIX CP/M 68000

## STD-SASI

The SASI interface bus is the fastest way to add hard disk storage to the STD bus. Besides hard disk, other type of storage can be added via the SASI card, including cartridge tape, streaming tape, floppy disks, and other technologies now in development.

### Features:

DMA support	connector for use of DMA on FLP2 card
SASI interface	meets all standard SASI interface needs
STD bus interface	4 I/O ports, user programmable addresses 4.0 MHz
Software support	CP/M 3.0 UNIX CP/M 68000

## STD-WORDS

Voice output is easily added to the STD bus with the VOTRAX based COLEX words card. The output can directly drive a speaker, and the low data rate required by the VOTRAX SC-01 makes installation and programming simple.

### Features:

STD bus interface	4 I/O ports, user programmable addresses 4.0 MHz
-------------------	---

## STD-CRT

Display interface from a STD bus CPU card to a display monitor and keyboard. This card emulates the DEC VT52 and HEATH H19 (Z19) terminals, with much higher speed due to parallel, not serial data transfers. Supports both serial and parallel keyboards. The on-board Z80 CPU relieves the bus CPU of all display management tasks.

### Features:

Display	80 x 25 lines
Control codes	Upward compatible to VT52, H19 type terminals
Keyboard interface	TTL 300 baud serial, or 8 bit ASCII encoded parallel
Video interface	75 ohm standard, 50/60 Hz
Processor	On-board slave Z80 CPU
STD bus interface	4 I/O ports, user programmable addresses 4.0 MHz, requires CPU supplied refresh
Software support	CP/M 3.0 UNIX CP/M 68000

## STD-IGDC

For enhanced display of full graphics, this card allows high resolution graphics to be added to the STD bus without loading the bus CPU. A local slave Z80 processor manages the 640 x 275 point display area.

### Features:

Display	80 x 25 lines characters, and/or 640 x 275 dots
Control codes	Upward compatible to VT52, H19 type terminals
Keyboard interface	TTL 300 baud serial,
Mouse interface	Depraz style
Video interface	75 ohm standard, 50/60 Hz
Processor	On-board slave Z80 CPU
STD bus interface	4 I/O ports, user programmable addresses 4.0 MHz, requires CPU supplied refresh



## MEMORY PRODUCTS

### STD-256DRAM

Up to 256Kb of dynamic RAM memory per card can be added to the STD bus using this card. It will operate at 4.0 MHz with no wait states. Bank switching logic allows a Z80 or 68000 CPU card to address up to 16 megabytes of memory, without modification to the defined STD bus.

#### Features:

On-board memory	64,128 or 256Kb dynamic RAM
STD bus interface	4 I/O ports, user programmable addresses
	4.0 MHz, requires CPU supplied refresh
Software support	CP/M 3.0
	UNIX
	CP/M 68000

## Accessories

### STD-CC10, STD-CC6

These backplanes hold 6 or 10 cards and are shipped fully assembled including 30 cm of power cable for direct installation in your system. Card spacing is .75 inches (20.8 mm).

### STD-WW1, STD-WW2, STD-EXT

These design aids speed development of your own STD bus compatible products. the STD-WW1 has a power and ground plane provided, the STD-WW2 has a hole matrix for any IC configuration, the STD-EXT extends the card out from the rack for debugging. Each product is shipped in sets of 5 per box.

### Sceptre-800

This desktop computer chassis can be used as the basis for many kinds of STD bus applications. It is available in 3 versions, all include an 130 watt power supply, 10 slot card cage, and a metal chassis. The front panel may be ordered without cutout, or with cutout sizes of 3.5 or 4.75 inches. The chassis may be ordered either without disks, with 2 Teac 55F floppy disks, or with one floppy and one 10 mb hard disk. Your local sales office will help you configure the system you need.

### Packaged systems

COLEX offers the STD bus cards prepackaged and fully integrated with operating system software as a desktop computer, the Sceptre-800 and Sceptre-3200 series. Three basic versions exist, the Sceptre 820, 850 and 3200 systems. They have the following specs:

	Sceptre-820	Sceptre-850	Sceptre-3200
Processor/speed	Z80/4.0 MHz	Z80/4.0 MHz	68000/8.0 Mhz
Main memory (bytes)	131,072	131,072	524,288
Expandable to	262,144	262,144	1,572,864
Main Printer interface	Centronics	Centronics	Centronics
Modem Interface	Yes	Yes	Yes
Built-in terminal	Optional	Optional	Optional
Terminal interface	Yes	Yes	Yes
Floppy disk	2 x 758 kb	758 kb	758 kb
Hard disk	No	10 Mb	10 Mb
Cartridge backup	Optional	Optional	Optional
Expansion slots	6	5	4
Operating system	CP/M 3.0	CP/M 3.0	UNIX system 3 CP/M 68K
Z80 emulation	-	-	Optional

## CP/M OPERATING SYSTEM

COLEX provides a fully configured version of the CP/M operating system for the standard COLEX computer. The BIOS for the configuration is available to those who need to make modifications for special applications. All hardware ports of the standard COLEX system are supported by built-in drivers to CP/M logical units.

### ORDERING INFORMATION

To order a COLEX product, please provide the following information:

product name: STD-xxxx, Sceptre-xxxx

frequency 50/60 Hz      voltage 110/220 V      Speed 2.5/4.0/8.0 MHz

For more information on any COLEX product, including the Sceptre range of computers or the STD and VME bus board products, please contact your local COLEX sales agent or COLEX office.

VT52 is a trademark of DEC

UNIX is a trademark of Bell Labs

CP/M is a trademark of Digital Research