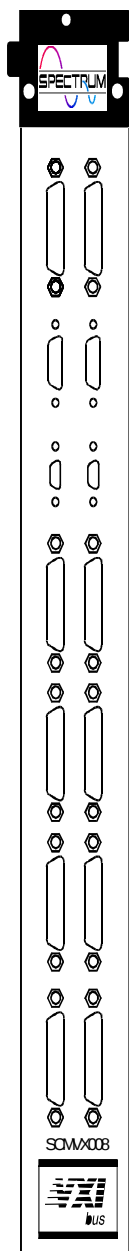


HP SCMVX008

Options and Accessories

Product Overview

Concentrated computing power with high performance I/O



- Two 60 MHz TI TMS320C40 DSPs
- Six TIM-40 mezzanine card slots
- Eight C40 comm ports on front panel
- Local bus support
- VXI shared memory
- Application specific connector
- JTAG connection
- Standard C40 software development
- Single-slot, C-size, VXI module

When your data acquisition and signal processing tasks demand concentrated computing power, the HP SCMVX008 is the answer.

Use the HP SCMVX008 when your acquisition or processing task is more than your system controller can handle. Add TIM-40¹ type DSP modules to the HP SCMVX008 to handle even bigger jobs in the future.

Options and Accessories

The HP SCMVX008 has several options and accessories to enhance its functionality.

¹ The Texas Instrument Module (TIM-40) for the C40 is a widely accepted mezzanine card standard generated by Texas Instruments.

TMS320C40 TIM-40 module (Option 011)

Use this option to increase the number of C40s in your HP SCM VX008 module. Each option 011 TIM-40 module adds a single 60 MHz clocked, TMS320C40 DSP with 1.5 MBytes of 0 ws SRAM evenly divided between the local and global memory busses.

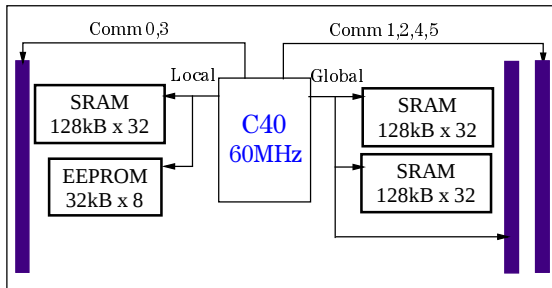


Figure 1: Option 011 Block Diagram

Option 011 comes standard with a global bus connection so the processor can access the VXI Local bus, VXIbus, VXI shared RAM and other DSPs. All six C40 comm ports are brought off the module to facilitate direct DSP to DSP communication.

This TIM-40 module includes 32 kBytes of on-board boot ROM so it can run independent of the host as well as facilitate multi-processing operating systems.

You can add six option 011 C40's to a single HP SCM VX008.

Dual TMS320C44 TIM-40 module (Option 012)

Use this module to increment the DSPs in your HP SCM VX008 by two while only using one TIM-40 slot. Each option 012 holds two 60 MHz clocked TMS320C44 DSPs. The C44 has the same functionality as the C40 but has two fewer comm ports and is physically smaller. Each C44 has 2 MB of 0 ws SRAM divided equally between their two busses.

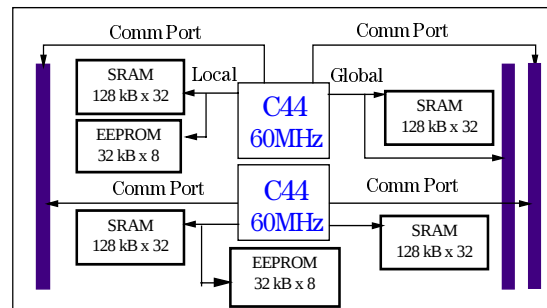


Figure 2: Option 012 Block Diagram

Option 012 comes standard with one processor connected to the global bus connector so the module can access the Local bus, VXIbus, VXI shared RAM and other DSPs. Six of the eight available C44 comm ports are brought off the module to facilitate direct DSP to DSP communication. The remaining two connect the two C44's.

The module includes 32 kB of on-board boot ROM for each DSP so it can run independent of the host as well as facilitate multi-processing operating systems.

Four Channel Tuner with DACs (option 040).

Commonly called a digital down converter (DDC), this module provides four independent channels of digital quadrature mixing with digital LOs followed by decimation filtering for use in digital radio applications.

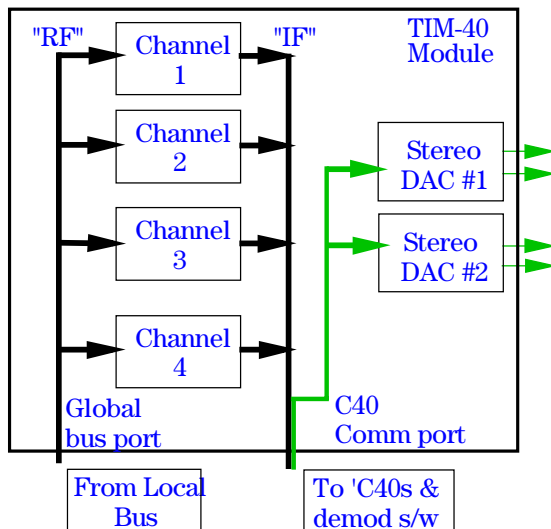


Figure 3: Option 040 Block Diagram

Each channel is independently tunable so it can select four specific signals for demodulation, once a segment of spectrum is downconverted and digitized by other VXI modules. Tuning resolution for each channel is <1 Hz resolution.

Programmable bandwidth filtering in option 040 enhances demodulation by maximizing signal to noise ratio. Filter bandwidths can be programmed between 125 kHz and 61 Hz, on data sampled at 20 MSa/s.

Decimation, also a standard feature, assures the lowest possible data rate without sacrificing signal information. The decimation factor is programmable from 64 to 131,072 in integer steps.

Because of the digital quadrature mixing all four channels supply digital I/Q data, perfect for processing digital modulation formats. Demodulation can then be performed by a C40.

Once a C40 has demodulated the signals, return them to the four channel DAC on the option 040 module. The DAC outputs are routed through the application specific connectors on the HP SCMVX008 front panel. Connect the outputs to speakers and listen to the demodulated signals. Or keep the signals in digital form and send them to the host for further processing or storage.

You can add up to six option 040 four channel tuner and DAC to a single HP SCMVX008.

*Demodulation Software
(option 140)*

Use this software with the option 040 four channel tuner and DACs TIM-40 module. Option 140 provides programmatic control of the LOs, filters, and DACs on the DDC, and provides AM, FM, and SSB routines to demodulate the signals selected by the tuners.

Because the option 040 has no processor or conventional memory this software must run on a C40 connected to a comm port (0, 4, or 5) of the option 040 TIM-40 module.

Use the source code shipped with Option 140 software as example code to create your own control and demodulation downloadable.

*VXI I/O Library and JTAG kit
(SCM04008)*

This kit provides the VXI device driver and interface libraries required to interface the HP SCMVX008 and its TIM-40 modules to the host controller.

The driver and interface libraries support operations such as control (reset, initialize, open, close), DSP code download, module I/O, and test. Both HP SICL and VXI *plug&play* VISA standards are supported providing a standard interface to higher level application software.

The kit includes the I/O library and drivers, VXI manual, TI C40 users manual, XDS cable conversion board and VXI JTAG chain cable for downloading code during code development.

A System library provides developers with a suite of C40 callable functions to exercise the full functionality of the HP SCMVX008. This low level C4X library optimizes data transfers and simplifies the task of configuring and controlling the HP SCMVX008. Support functionality includes: VXI bus routines (DMA, configuration and VXI master transfers), Local Bus routines (bus configuration and data transfer), RS232 communication, and user defined LED control.

Utility software is also included in this kit. The software provides easy to use PEROM programming utilities (EEPROM Tools) for programming the boot ROMs, example software (with source code), and built in test software to verify board level functionality at power up.

One of these kits must be ordered with the HP SCMVX008.

Debug Kit (DOS)
(SCM01545)

This kit provides HP SCM VX008 specific tools to aid software development.

The debug kit includes an XDSC40 emulator board, DB40 debugger software, and an XDS C40 users manual to enable downloading and debugging C40 code from an external PC via the front panel JTAG connector.

The HP SCM VX008

The HP SCM VX008 brings one of the most popular digital signal processors in the world to VXI. This C-size single slot VXI module, contains two of Texas Instrument's high performance 60 MHz TMS320C40 digital signal processors. These are 32 bit resolution, general purpose, floating point DSP chips ideal for application in communications, signal analysis, process control, data acquisition, and test.

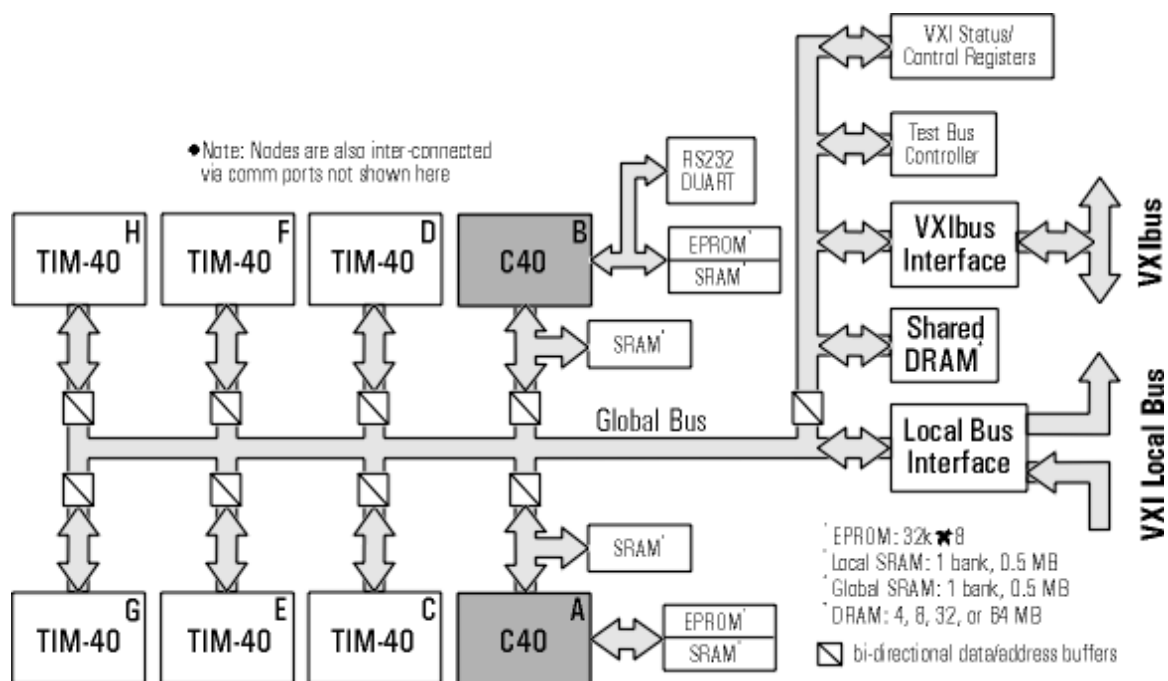


Figure 4: HP SCM VX008 Block diagram

Ordering Information

TI based DSP module	HP SCMVX008
TMS320C40 TIM-40 Module	Opt 011
Dual TMS320C44 TIM-40 Module	Opt 012
Four Channel Tuner with DACs	Opt 040
AM, FM, SSB Demodulation Software	Opt 140
4 MB DRAM VXI Shared Memory	Opt 082
8 MB DRAM VXI Shared Memory	Opt 083
32 MB DRAM VXI Shared Memory	Opt 085
64 MB DRAM VXI Shared Memory	Opt 086
Delete manual	Opt OBO
Additional manual	Opt OB1
VXI mainframe connector shielding	Opt 908

SCM04008 I/O library

SCM01545 Debug kit

SCM00010 C4X Comm Port Cable Kit

SCM00012 JTAG Chain Cable

A2636-61601 RS232 Cable

Warranty

The HP SCMVX008, its accessories and options are distributed, warranted and supported by Hewlett Packard. This module is manufactured by Spectrum Signal Processing, Inc.

The HP SCMVX008 comes with a 1-year warranty. During that period, the unit will either be replaced or repaired, at HP's option, and returned to the customer without charge.