

Matrox Supersight Solo >>

Entry-level high-performance computing (HPC) platform for industrial imaging



Benefits

Harness the full power of today's multi-core CPU, GPU, and FPGA technology for image processing offload and acceleration

Eliminate I/O bottlenecks with a PCIe® 2.0 switched fabric backplane architecture

Maximize compute density in a 4U chassis with up to 13 full-length full-height PCIe 2.0 slots

Increase host data transfer bandwidth through dual PCIe® 2.0 x16 interfaces¹

Directly interface to external process equipment via integrated Gigabit Ethernet, RS-232/485 and USB 2.0 connectivity

Minimize the need for revalidation by utilizing a lifecycle managed platform with consistent long term availability

Simplify system integration by using an integrated platform from a single vendor and pre-qualified third-party components

Solve applications rather than develop underlying tools by leveraging standard Microsoft® development tools and the Matrox Imaging Library (MIL)

HPC for imaging

Matrox Supersight Solo combines the latest technologies—multi-core CPUs, GPUs and FPGAs—in a single pre-validated high-performance computing (HPC) platform, allowing OEMs to focus on developing applications with cutting-edge performance instead of integrating components. Matrox Supersight Solo is fully supported by the Matrox Imaging Library (MIL), an established collection of software tools for developing industrial imaging applications. MIL extracts the maximum performance from the platform and delivers a complete solution in a timely manner. Backed by a carefully managed lifecycle and long term availability, Matrox Supersight Solo provides a solid foundation for your next computationally-demanding application.

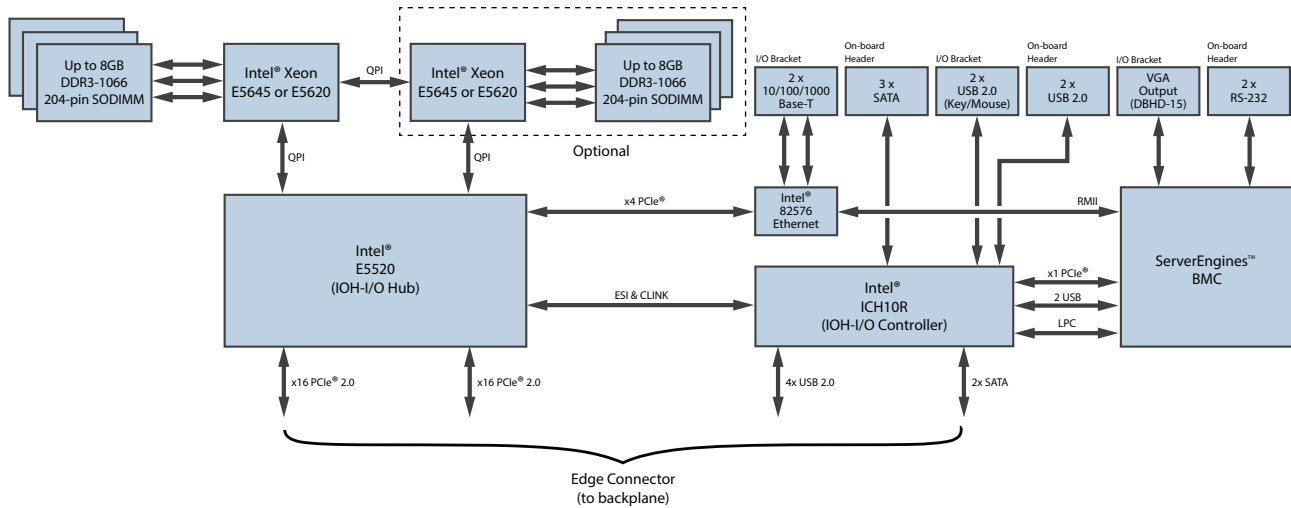
Processing trinity

Achieving maximum performance requires using the right technology in the right place within the application. FPGAs show great strength with image pre-processing tasks, general purpose CPUs are ideal for image processing and analysis, and GPUs provide substantial acceleration for image processing primitives. Matrox Supersight Solo enables developers to pull together all of these technologies to create a complete HPC platform.

Consistent long-term availability

Carefully selected components are coupled with strict change control to ensure consistent long-term supply of the Matrox Supersight Solo. This lets OEMs maximize return on their original investment without incurring the additional costs associated with repeated validation of constantly-changing mainstream commercial platforms.

Matrox SHB-5520



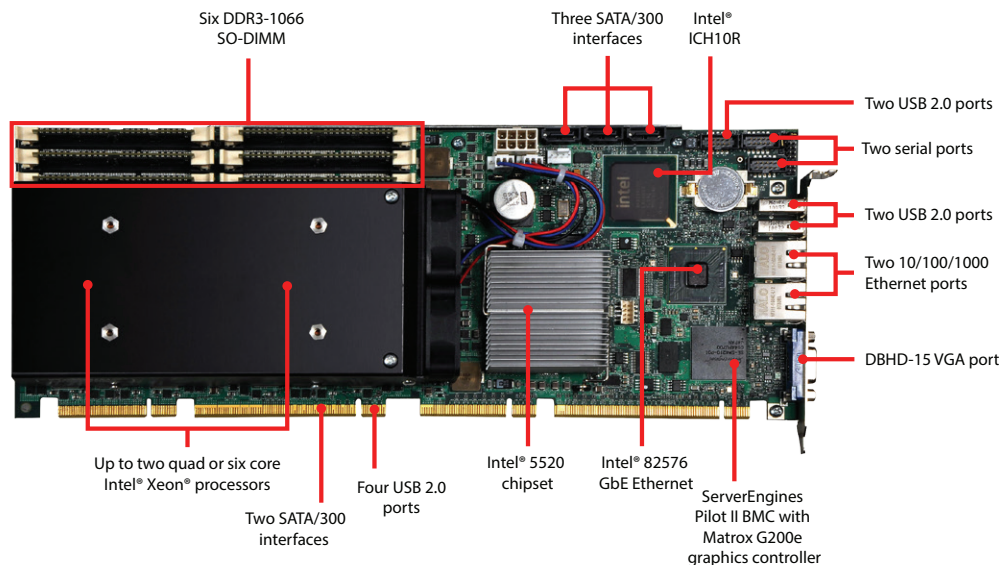
Easy integration and management

Matrox Supersight Solo's high density makes it easy for OEMs to incorporate it into their systems. System health monitors - temperature, voltage and fan speed - working in tandem with a watchdog timer let the Matrox Supersight Solo detect, report and recover from errors and failures and quickly return the system to operational status.

System Host Board (SHB)

With up to 12 cores split between two Intel Xeon processors, the Matrox SHB-5520 is ideally suited for the most demanding processing tasks. Advanced interrupt handling and hardware acceleration in the Intel 82576 Gigabit Ethernet controller balance the Ethernet load between the CPUs freeing valuable resources for image processing. Dual PCIe 2.0 x16 host interfaces¹ provides added data transfer bandwidth between the Matrox SHB-5520 and its add-in boards.

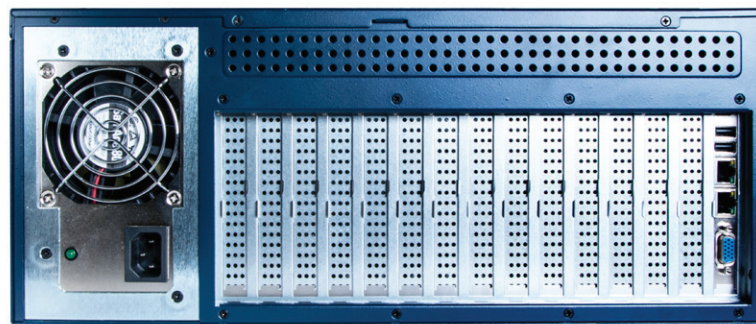
Matrox SHB-5520 (cont.)



Matrox Supersight Solo chassis

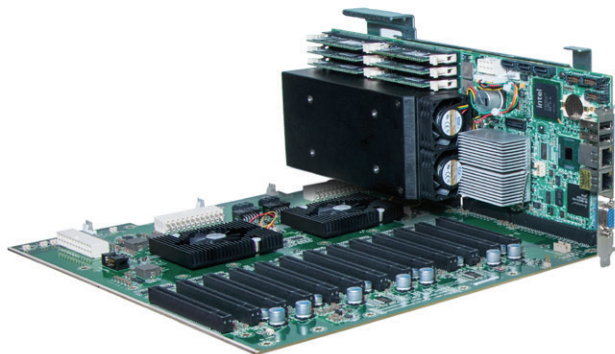


Front view

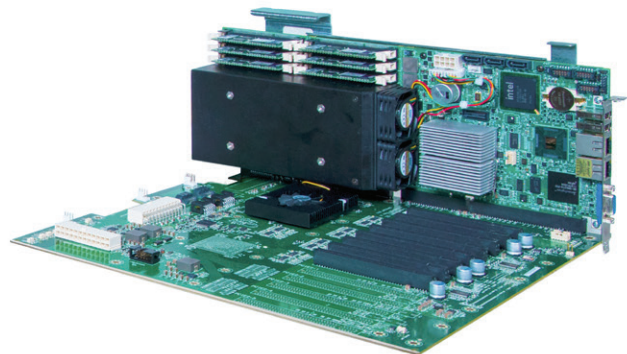


Rear view

Matrox Supersight Solo backplane configurations



Matrox SHB-5520 in
13-slot PCIe® backplane



Matrox SHB-5520 in
8-slot PCIe® backplane

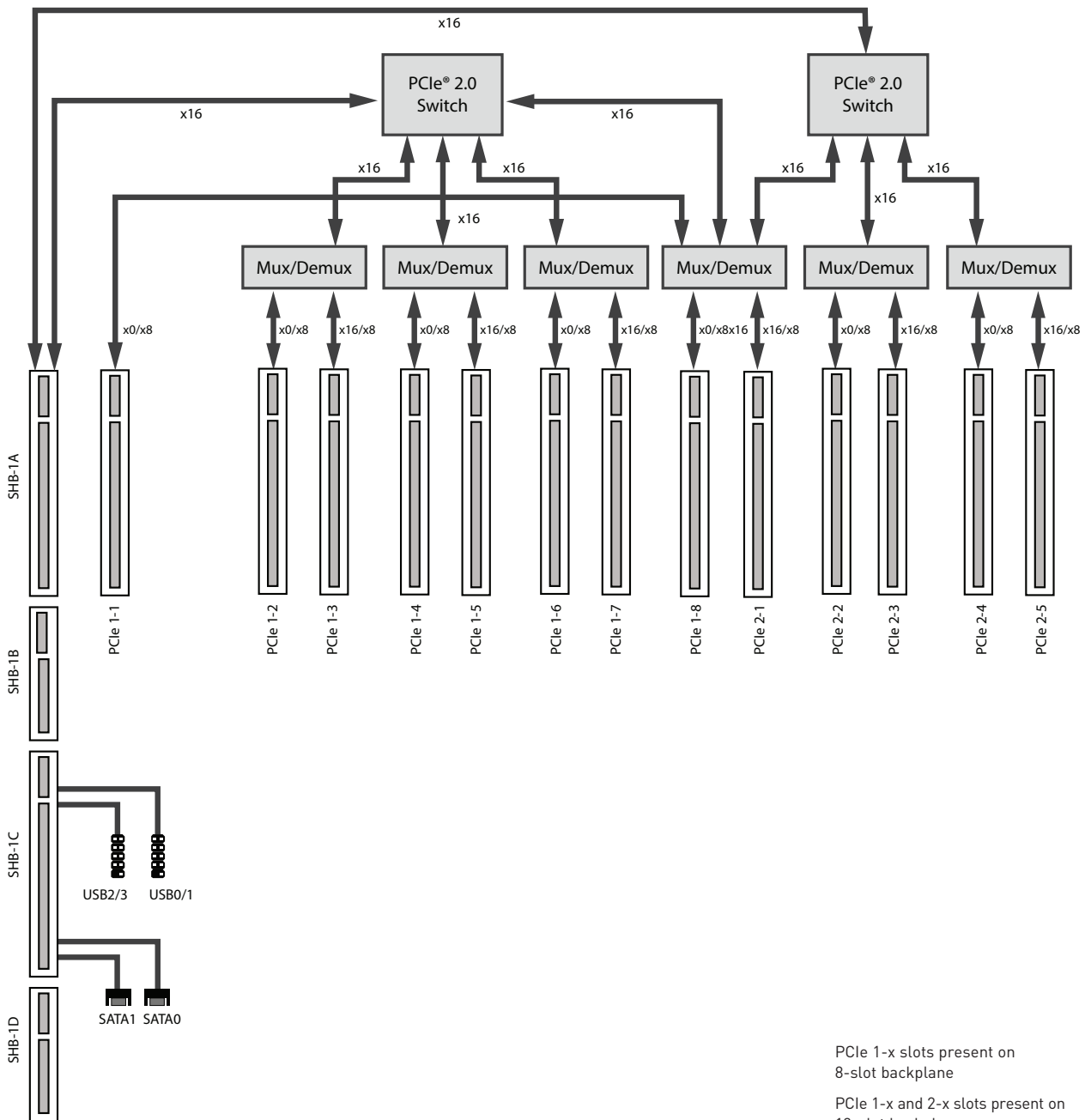
Backplane

An 8 slot PCIe® 2.0 backplane provides good expansion opportunities for Matrox and third-party video capture, accelerator/coprocessor, graphics and general I/O boards to fulfill the demands of many imaging applications. An optional 13 slot backplane supports more add-in boards divided in two segments, each segment with its own PCIe® 2.0 x16 pathway to the SHB, for added data throughput capability.

Power and storage

A 1000 W power supply² lets the system accommodate multiple frame grabber, accelerator/coprocessor and graphics boards. Integrated 2.5" hard drives provide a greater level of shock and vibration resistance over standard desktop models. Quick release, hot swappable drive bays with RAID support increase system reliability and facilitate maintenance.

PCIe® 2.0 Backplane



Software Environment

Acquisition

Matrox Imaging offers the industry's most comprehensive line of image acquisition boards for all major interfaces including Camera Link®, CoaXPress, DVI/SDI and GigE Vision™ as well as standard and nonstandard analog. Refer to the individual Matrox interface boards' brochures for more information.

Processing acceleration

FPGA-based image processing is a powerful addition to an image acquisition board providing substantial offload of the host processors for image processing primitives without consuming additional slots. Refer to the Matrox Radiant eCL datasheet for more information.

GPU-based image processing, through the use of pre-installed AMD professional graphics adapters, provides substantial acceleration for sequences of image processing primitives. Refer to the "Ordering Information" section of this datasheet for available options.

CPU-based image processing provides the ultimate flexibility to enable optimal performance for high-level image processing routines.

Operating System

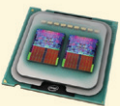


Matrox Supersight Solo comes pre-loaded with Microsoft® Windows® 7 Professional for Embedded Systems, which provides all the features of the standard operating system with an extended life cycle needed to ensure longevity of supply. Native 64-bit support enables the handling of large amounts of system memory.

Matrox Imaging Library (MIL)

A complete imaging platform must include not only hardware but also robust software tools. Matrox Imaging Library (MIL) is a high-level programming library with an extensive set of optimized functions for capture, processing, analysis, display, I/O and archiving. Refer to the MIL datasheet for more information.

As new processing and acceleration hardware becomes available, MIL with its common high-level API, lets developers quickly and easily adapt the application to take full advantage of the performance provided by this hardware with minimal recoding; thereby protecting the original development investment. MIL is licensed for the Matrox Supersight Solo on a per chassis basis. Matrox Supersight Solo automatically grants access to MIL-Lite and Distributed MIL (DMIL) functionality.

Code Portability

	Multi-core CPU	<pre>MsysAlloc(M_SYSTEM_HOST, ..., &MilSystem); ... MbufAlloc2d(MilSystem, ..., &SrcImage); ... MimConvolve(SrcImage, DestImage, Kernel);</pre>
	GPU	<pre>MsysAlloc(M_SYSTEM_GPU, ..., &MilSystem); ... MbufAlloc2d(MilSystem, ..., &SrcImage); ... MimConvolve(SrcImage, DestImage, Kernel);</pre>
	FPGA	<pre>MsysAlloc(M_SYSTEM_RADIENT, ..., &MilSystem); ... MbufAlloc2d(MilSystem, ..., M_ON_BOARD, &SrcImage); ... MimConvolve(SrcImage, DestImage, Kernel);</pre>

Specifications

System Host Board (SHB)

- Two (2) PCIe® 2.0 x16 host interfaces¹
- Intel® 5520 (Tylersburg 36D) + ICH10R Chipset
- two (2) 1336-pin LGA sockets
- up to two (2) Intel® Xeon® processor 5600 series
 - 80W TDP
- 5.86 GT/s QPI interface
- Matrox G200e graphics controller
 - one (1) RGB (VGA) display output
 - up to 1600x1200 @ 60Hz
- six (6) 204-pin SODIMM sockets
- up to 48GB DDR3-1066 non-ECC unbuffered SDRAM
- five (5) SATA/300 3.0 Gbps ports with raid 0, 1 and 10 support
 - three (3) on-board
 - two (2) on backplane (through edge connector)
- two (2) Gigabit Ethernet ports (10/100/1000)
- eight (8) USB 2.0 ports
 - two (2) on the PCI bracket
 - two (2) through pin headers
 - four (4) on backplane (through edge connector)
- two (2) RS-232/RS-485 serial ports
- hardware health monitoring
 - fan
 - temperature
 - voltage

8 or 13-Slot PCIe® 2.0 Backplane

- one (1) host slot
 - single (8-slot) or dual (13-slot) PCIe® 2.0 x16 interface (s)
- eight (8) or thirteen (13) PCIe® 2.0 x16 75W slots³
- two (2) SATA/300 connectors
- three (3) USB 2.0 connectors
 - two (2) ports per connector

CPU options

- one (1) or two (2) Intel® Xeon® processors E5645
 - six-core
 - 2.4 GHz
 - 5.86 GT/s QPI
 - 12 MB Last Level cache
- one (1) or two (2) Intel® Xeon® processors E5620
 - quad-core
 - 2.4 GHz
 - 5.86 GT/s QPI
 - 12 MB Last Level cache

Specifications (Cont.)

Memory options (per CPU)

- 6 GB DDR3-1066
- 12 GB DDR3-1066
- 24 GB DDR3-1066

Hard disk options

- up to four (4) hard disks
 - up to 250 GB
 - SATA/300
 - 7200 RPM
 - 16 MB cache

Optical drive options

- one (1) slim optical disk drive
 - 24x CD R/W
 - 8x DVD-ROM
 - SATA/300
 - 2 MB cache

Chassis

- Dimensions
 - length: 48.0 cm (19.5")
 - width: 48.2 cm (19.0")
 - height: 4U, 17.8 cm (7.0")
- Mounting
 - 19" rackmount
 - Removable rack ears
 - Removable rack handles
- Drive bays
 - front-accessible
 - four (4) 2.5", hot-swappable hard disk bays
 - one (1) slim CD/DVD bay
- I/O Interfaces
 - six (6) USB 2.0 ports
 - four (4) front accessible
 - two (2) internal
- Additional features
 - hinged front panel with lock
 - ATX rocker power switch
 - recessed reset button
 - power and HDD notification LEDs
 - fifteen (15) slots

Specifications (Cont.)

Power Supply

- 1000 W power supply
- AC input
 - 100-240 VAC
 - 47-63 Hz
 - 40 A
 - Power factor corrected
- DC output
 - +3.3VDC @ 25A
 - +5 VDC @ 25A
 - +12VDC @ 50A
 - -12VDC @ 0.8A
 - +5VSB @ 3.5A
- supplemental power connectors
 - six (6) 4-pin peripheral (12V DC & 5V DC)
 - one (1) 8-pin EPS CPU
 - five (5) 6-pin PCIe® Power 75W (12V DC) or 8-pin PCIe® Power 225W

Specifications (Cont.)

Certifications

- FCC class A
- CE class A pending
- RoHS-compliant

Operating system

- pre-loaded with Microsoft® Windows® 7 Professional 64-bit for Embedded Systems

Environmental

- 10°C (50°F) to 35°C (95°F) operating temperature
- -40°C (-40°F) to 85°C (185°F) storage temperature
- up to 90% (non-condensing) relative humidity

Dimensions



Ordering Information

Hardware

Part number	Description
SSL-MTRX-01*	Matrox Supersight Solo with single SHB-5520 featuring a single Xeon® E5620 CPU, 6GB DDR3 SDRAM, 250 GB HDD and Windows® 7 Professional 64-bit for Embedded Systems. Includes 8-slot PCIe® 2.0 backplane and 1000 W power supply.

Software

Refer to Matrox Imaging Library (MIL) brochure.

GPU option (add the following to the above configurations)

Part number	Description
Call for part number	ATI Fire Pro V7800 single-width GPU card with 2GB GDDR5 memory and 1440 stream processors.
Call for part number	ATI Fire Pro V8800 double-width GPU card with 2GB GDDR5 memory and 1660 stream processors.

Endnotes:

1. Using optional 13-slot backplane.
The standard 8-slot backplane provides only a single host interface.
2. Optional 1.8k W power supply also available.
3. Maximum of 112 active lanes. See block diagram for valid configurations.

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