

## SC072-PDS

### The world's most complete, most energy-efficient Personal Development System. Put the power of 72 processors to work for you, at your desk.

The SiCortex SC072-PDS™ Personal Development System provides a powerful, easy-to-use development environment for parallel programming. Packaged with Linux, the operating system of choice for HPC, and a plethora of open systems tools and libraries, the PDS combines the at-the-desk accessibility and low cooling requirements of a PC with the speed and power of high-productivity computing. The PDS is a fully-loaded, 72 processor development system in a single desk-side cabinet. Installation is quick and easy: plug it in next to your desk and start coding ready-to-scale parallel applications. Your completed applications can easily be run on thousands of processors available on other SiCortex computers with comparably impressive space- and power-efficient footprints, or can be migrated to data center supercomputers.

The PDS comprises twelve nodes of a six-processor chip each operating at 1.4 GFlops, together with a low latency, high bandwidth interconnect fabric to ensure optimal communication between nodes. The SiCortex development and processing environment is far superior to the x86 chip set, board and port configurations of conventional clusters that are too unwieldy, noisy and hot for a standard

work environment. In comparison to GPU-based systems, the powerful and easy to use SiCortex development environment enables developers to build sophisticated applications in a small fraction of the time, and easily migrate these programs to a wide variety of systems.

“The SC072-PDS is a wonderful platform for scalable application and algorithm development. By building a truly balanced architecture where the interconnect, memory bandwidth and compute capacity all play equal roles, the PDS represents the next step in bringing high core count computing to the masses. We can now develop and analyze algorithms right on the desktop with real confidence that they will scale out to our petascale platforms at Oak Ridge National Labs and the University of Tennessee at Knoxville. This type of functionality is not yet available from other vendors; the closest offerings come with higher price tags and place significantly higher demands on power, space and cooling.”

—Jack Dongarra, University Distinguished Professor in Electrical Engineering & Computer Science, University of Tennessee



- Delivers 100 GFlops of performance using less than 300 Watts.
- Whisper-quiet desk-side package
- 48 GByte and 96 GByte memory systems available
- 2 Gigabit Ethernet ports
- 3 PCI Express slots
- 250 GByte disk drive, expandable to 6 industry standard disk drives
- Advanced SiCortex interconnect fabric
- Monitor, keyboard and mouse not included
- Industry standard Linux: pre-integrated and installed. Compilers, libraries, Luster parallel file system, system management tools.

## The SiCortex Software Environment

The SiCortex software environment provides a powerful and fully integrated set of tools to support applications, combining maximum user-level performance with minimum system management overhead. All components of the environment have been tested together and pre-loaded into each SiCortex system prior to shipment, eliminating a major source of user integration effort and potential error.

## Development Features

- 72-core SiCortex cluster integrated into a Redhat Enterprise Linux workstation
- Unified Open Source development environment and the PathScale Optimizing Compilers for Fortran, C and C++
- Rich debugging infrastructure, including memory debugger, GDB, and TotalView parallel debugger (license required)
- The industry's leading integrated, easy-to-use parallel performance analysis tool suite, including PAPI support and sophisticated TAU and Vampir (license required) visualization tools
- Rich selection of optimized open source scientific libraries for the SiCortex architecture, including fast math and string libraries, FFTW, PetSC, ATLAS, Scalapack and more.
- Optimized MPI implementation delivering world-class performance
- Predominantly Open Source-based tools and codes; source code available for nearly everything
- 1000's of additional open source packages available through 3rd party repositories
- Extensive online documentation library and active user forum

For further information, refer to the the SiCortex Software and Development Environment data sheet.

SiCortex High Productivity Computer Systems	SC072-PDS Personal Development System	SC1458 Entry/Mid-range System	SC5832 High Capability System
Minimum Processors	72	324	1,944
Maximum Processors	72	1,458	5,832
Maximum Memory	96 GB	2 TB	8 TB
Performance (Flops)	100 GF	2 TF	8 TF
Power Draw	300 Watts	<5 kWatts	<20 kWatts
Voltage	100-240VAC, single-phase	200-240VAC, single-phase	208VAC, three-phase (3P+E); 230/400VAC, three-phase(3P+N+E)
Current	3A (100-120V); 1.5A (200-240V)	26A	64A (208V); 34A (400V)
Frequency	50-60Hz	50-60Hz	50-60Hz
Maximum Heat	1,020 BTU/hr	17,700 BTU/hr	70,300 BTU/hr
Dimensions	18" H x 8.1" W x 23" D	70" H x 23" W x 42" D	72" H x 60" W x 60" D
Clearance	Left 3", right 0"; front and rear, 3"	Left 2.5" right, 0" front and rear 36"	Left and right, 18"; front and rear, 36"; above 22"
Maximum Weight	41 lb	470 lb	1500 lb
Operating Temperature	10-35C (50-95F), less 1C/300m above sea level (1.8F/1000') to a maximum of 3000m (10,000')		
Relative Humidity	20-80%, non-condensing		
Non-operating Temperature	-40-70C (-40-158F)		

- The computers above are classified as information technology equipment (ITE) and carry the CSA, CE, FCC, and VCCI marks.

- The computers above are compliant with CSA 22.2 60950-1 and EN 60950-1.

- The computers above are Class A computing devices compliant with FCC Part 15 Subpart B, EN 55022, EN 55024, ICES-003, VCCI, CNS 13438, and AS/NZS 3548.

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## About SiCortex

Headquartered near Boston, Mass., SiCortex, Inc. makes the world's most energy-efficient high-productivity computers. Its proven architecture was designed from the silicon up to provide breakthrough delivered performance at the lowest power consumption in the industry. SiCortex computers scale from 72 to 5,832 processors running standard Linux and other open-source codes, in packages ranging from deskside to departmental to data center. SiCortex systems are the compute-power behind some of the most important research initiatives at the country's national laboratories and academic institutions. For more information, visit [sicortex.com](http://sicortex.com)