



WuifKit





Dolphin-Scali PPK - Product Information

*Dolphin-Scali Parallel Processing Kit for Linux, Solaris, and NT. Codename: **WulfKit***

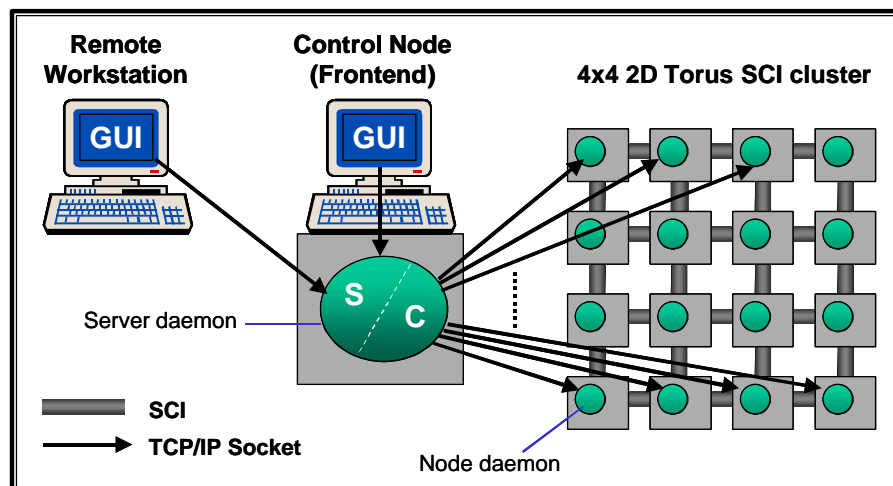
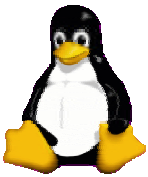
The Dolphin-Scali PPK enables construction of powerful, scalable, parallel processor systems at affordable prices.

This kit, along with user supplied Sun or Intel architecture platforms, enables construction of a scalable, MPI (Message Passing Interface) based, multiprocessing system for parallel applications -- at an affordable price.

Using this proven technology -- it is simple to construct a powerful multi-processor system which runs MPI-based supercomputer applications yielding impressive performance benchmarks and low price/performance ratios.

This performance is achieved by combining Scali's fast inter-processor communication software, and Dolphin's high speed, low latency SCI network interconnect technology.

There is an informative web presentation on this architecture which may be viewed at ... <http://www.scali.com/Presentation/sld001.htm>



16-Node WulfKit Topology

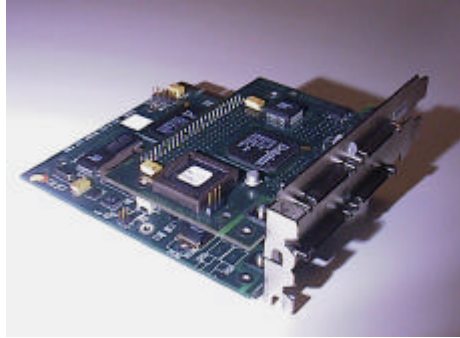
Scali Technology

Scali provides affordable, scalable, supercomputer topology -- without compromise. Compared to traditional parallel systems -- Scali systems offer an order of magnitude better price/performance for parallel applications.

These systems are based on standard SUN or Intel architecture processors, Scali MPI, Scali processor-interconnect software, and high performance, low latency, Dolphin SCI network interconnect technology.

Scali computer systems are scalable to hundreds of processors through the use of an innovative Dolphin SCI torus topology with a distributed interconnect scheme that eliminates the need for expensive centralized switches and provides improved operation and reliability at significantly lower cost.

Dolphin Technology



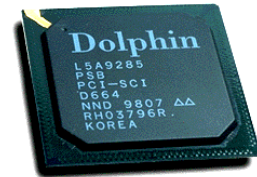
Since 1992 Dolphin has offered a *comprehensive* line of very high speed computer interconnection equipment using IEEE Standard 1596 SCI (Scalable Coherent Interface) interconnect components. This product line continues to grow in numbers and increase in performance with no limits into the foreseeable future.

Dolphin's product line includes:

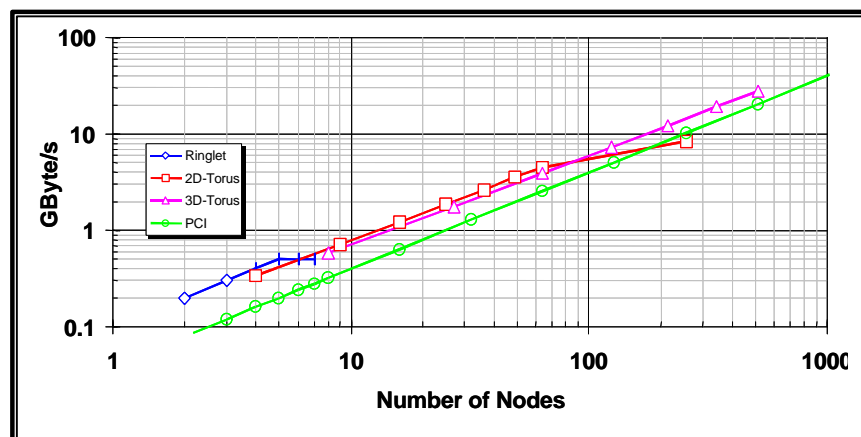
(1) Network Interface Cards, (2) Cables, (3) Switches, (4) Integrated Circuits and (5) a large selection of software to enable these products to be used with a number of popular computers and operating systems. Dolphin also licenses some of its IC and circuit designs to selected customers. Customers include OEMs (computer equipment manufacturers), VARs (Value Added Resellers), and end users of computer equipment.

These legendary products are found where lightning fast and reliable data movement is needed for computers and computer peripherals. This includes parallel supercomputers, modern file servers, clustered computer systems, I/O equipment, and high-bandwidth network connections.

To visualize just how fast Dolphin's SCI interconnect technology is – one may contrast it with, for example, the ubiquitous Ethernet standard. *Fast* Ethernet runs at a maximum signaling rate of 100-*million* bits per second, while Dolphin's SCI technology operates at 8-*billion* bits per second.



Additional information about Dolphin and other Dolphin products may be found at the Dolphin World Wide Web address: <http://www.dolphinics.com>.



Calculated Scalability

Scali MPI

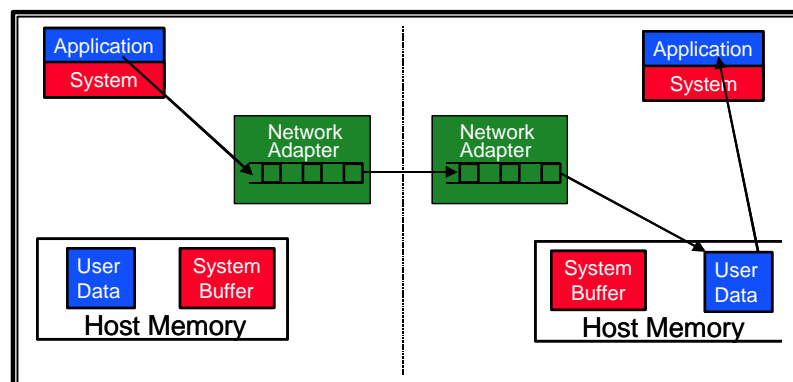
Scali's MPI is a native, very high performance implementation of MPI which features multi-thread safety, command line replication to all involved nodes and simultaneous inter-node and intra-node MPI communication. The MPI runs with multithreaded drivers for interfacing to the low level hardware and OS functions.

The Scali MPI follows MPI 1.1 specifications and has been tested against a large number of test suites to assure compatibility with the specifications and error free operation. The Scali MPI software comes complete with all the required drivers for the PCI to SCI adapter cards and provides the following:

- Highly optimized implementation
- High Bandwidth – Low Latency
- Multi-thread safety - with flexible thread dialect
- Simultaneous inter/intra node operation
- Exact message size option
- MPI 1.1 verified through 1665 MPI testing
- Fault tolerant operation
- Automatic selection of physical transport mechanism
- Unix, NT and Linux command line replication
- Built-in support for the Etnus *Total/View* Debugger: www.etnus.com

The Scali MPI communications software offers users ...

- Write and Forget – No processor stalls
- Shared Address Space Data Transfers (Fast, Low Latency)
- Pipelining
- Barrier Synchronization
- Broadcast
- Scatter and Gather
- All-gather
- All-to-All
- Reduce-scatter
- Scan



Shared Address Space Data Transfers

WulfKit Contents



Each kit contains all the hardware and cables needed for a single node. To configure multiple nodes – order the appropriate number of kits.

Scali Software may be available in the kit but is always downloadable from the Scali www site: <http://www.scali.com>

Kit contents may vary with time but generally will include the following components.

- Dolphin PCI SCI Network Interface Card
- Dolphin SCI Network Daughter Card
- Two 1-meter SCI Network Cables
- Scali software on CD
- Installation and Operating Instructions

Configuration Information

- ✓ 4, 9 or 16 nodes, allowing for 2D Torus in (2 x 2), (3 x 3) or (4 x 4) patterns.
- ✓ Configurations larger than 16 nodes are possible but not recommended without the Scali management software and support. Consult your Dolphin-Scali sales representative for more information.
- ✓ Operating Systems Supported
 - Linux
 - Sun Solaris X86
 - Sun Solaris (SPARC)
 - Microsoft NT
- ✓ Platforms Supported
 - Intel PC's with 1 or 2 Pentium II or III and 440BX or 440GX chipset
 - Intel PC's with 1 to 4 processors and 450NX chipsets
 - Sun Ultra 5, 10, 30, 60
- ✓ Required Customer Equipment
 - Suitable Processor Platforms
 - Each platform having two PCI slots which are side-by-side
 - Each platform equipped and connected with a standard Ethernet or equivalent network.
 - There must be one platform with keyboard, mouse, and display for software loads, control, and configuration. This may be one of the operational platforms or it may be any other platform which is connected to the cluster via LAN, WAN, or Internet.
- ✓ **Note – Platform and Operating System support will change with time. Consult your Dolphin-Scali sales representative for the latest information on this.**

Applications

A major application for this combination of products is Parallel Computing. A fine example of this is the 96-node, 192-processor, torus connected cluster operating at the Center for Parallel Processing in the University of Paderborn in Germany. <http://www.uni-paderborn.de/pc2/systems/sci/psc1/index.htm>

The Dolphin-Scali Parallel Processor kit gives researchers and developers the opportunity to build high performance and cost effective clustered systems for SPARC or INTEL based SMP (Symmetrical MultiProcessing) nodes

The result is a stable MPI enabled hardware and software ensemble for any supercomputing research project.

This setup is also applicable for research or OEM adaptation in the areas of scalable routers and storage networks.



**University of Paderborn
96 Node 192 Processor System**

WulfKit

The kit consists of 1 x Dolphin SCI PCI board, 1 x SCI daughter board, 2 x 1-meter cables, plus Scali MPI and utility Software.



Ordering Information

This product and all other Dolphin products may be ordered in the usual way through your Dolphin Sales Representative. A list of Dolphin offices and Sales Contacts is given below ...

Location	Office Address	Sales Contact
Western North America - Los Angeles Area Office	Dolphin Interconnect Solutions Inc 3609 E. Thousand Oaks Blvd Westlake Village, CA, 91362 Phone: (1) 805 371 9493 Fax: (1) 805 371 9785 e-mail: info@dolphinics.com	Keith Murphy Direct Tel: (818) 597 2114 Direct Fax: (818) 597 2119 Mobile: (818) 216 3082 e-mail: kmurphy@dolphinics.com
Eastern North America - Boston Area Office	Dolphin Interconnect Solutions Inc. 111 Speen Street Framingham, MA 01701-2090 U.S.A. Phone: (1) 508 875 3030 Fax: (1) 508 875 1517 e-mail: info@dolphinics.com	Michel Cormon Direct Tel: (508) 875 3030 x324 Direct Fax (508) 898 2553 Mobile: (617) 901 5860 e-mail: mcormon@dolphinics.com
Asia Scandinavia - Oslo Norway Office	Dolphin Interconnect Solutions AS Olaf Helsetsvet 6 N-0621 Oslo Norway Phone: (47) 23 16 70 00 Fax: (47) 23 16 71 80 e-mail: info@dolphinics.com	Kåre Løchsen Mobile: +47 950 88 731 e-mail: kl@dolphinics.com
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Japan	Shoshin Corporation 2nd Sales Department 2-4-2 Muromachi Nihonbashi Chuo-Ku Tokyo 130 Japan Phone: (81) 3-3270-5921 Fax: (81) 3-3245-1695 e-mail: sales2@shoshin.co.jp	Use Office Information
South Korea	HYUNWOO MICRO INC. 904, Silla Techno Vill, 39-3, Dang-dong, Gunpo-si, Kyongki-do Korea 435-010 Phone: (82) 343-458-9090 Fax: (82) 343-451-2864 e-mail: hmllee@solar.hyunwoo.co.kr	Use Office Information

NOTICE

This document is correct at the time of its publication but the information is subject to change. Consult your Dolphin sales representative for the latest information.

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