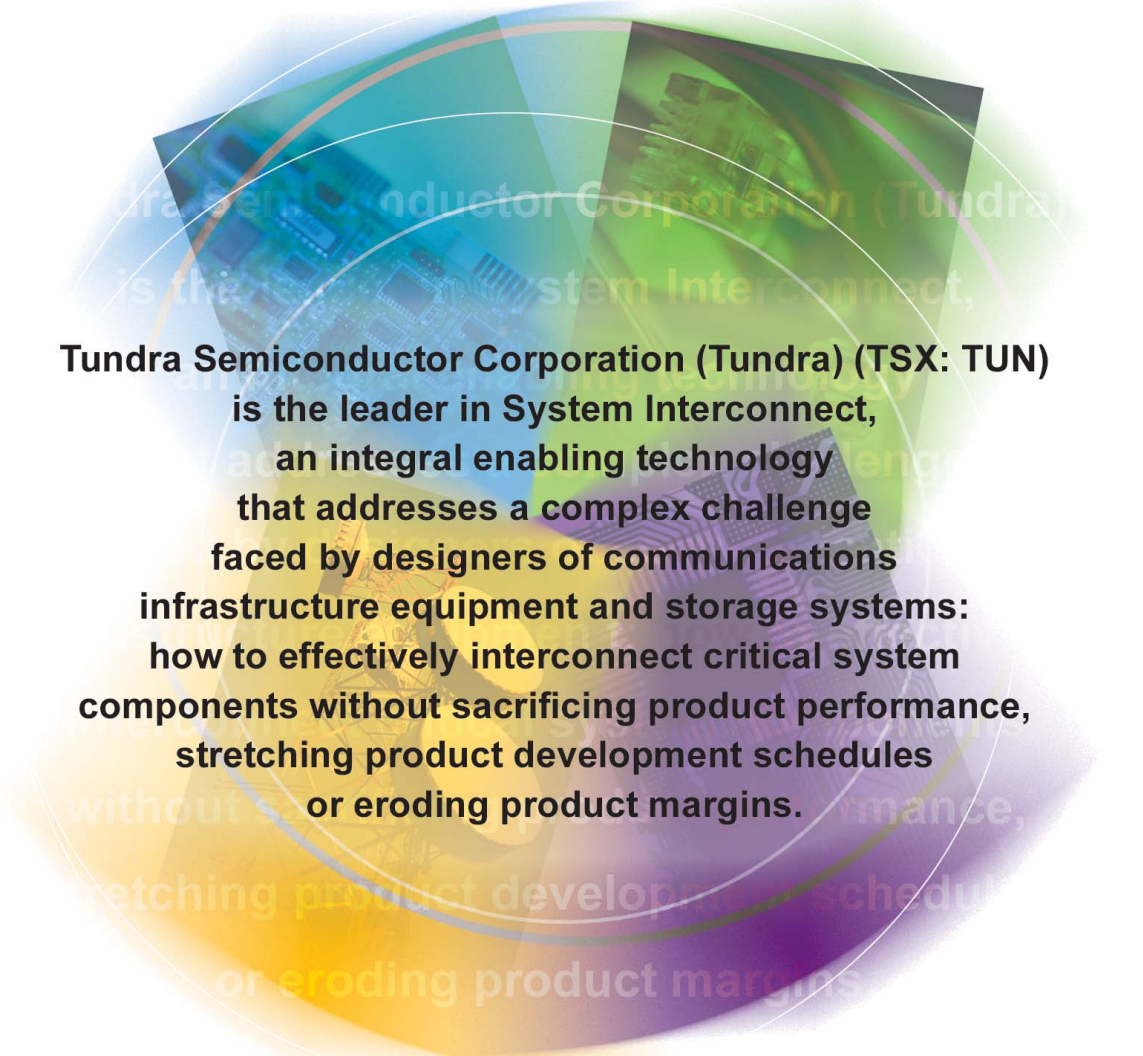


Tundra System Interconnect



www.tundra.com



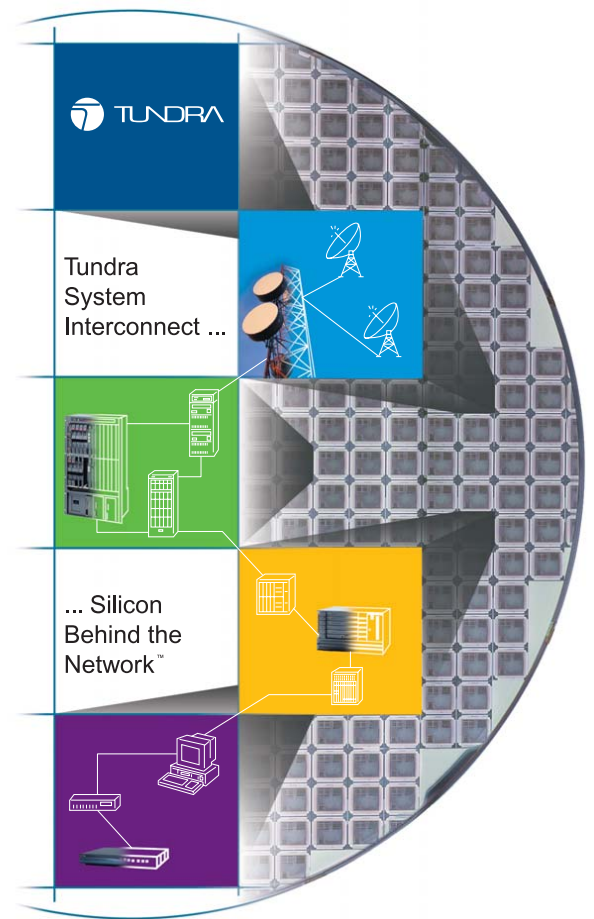
Tundra Semiconductor Corporation (Tundra) (TSX: TUN)
is the leader in System Interconnect,
an integral enabling technology
that addresses a complex challenge
faced by designers of communications
infrastructure equipment and storage systems:
how to effectively interconnect critical system
components without sacrificing product performance,
stretching product development schedules
or eroding product margins.

Tundra designs and delivers high-impact semiconductor products that enable innovative architectures in communications infrastructure and storage systems.

The ever-growing demand for bandwidth from Internet and network users means communications infrastructure equipment suppliers are under enormous pressure to get to market faster with increasingly sophisticated and scalable products. This has created the need for a class of System Interconnect products that can connect critical system components without sacrificing product performance, extending product development schedules or eroding product margins.

Tundra helps address these demands with Tundra System Interconnect products that eliminate internal system bottlenecks in networking equipment. Communications infrastructure and storage vendors rely on Tundra for off-the-shelf, standards-based, easy-to-deploy, and highly reliable System Interconnect.

**Tundra System Interconnect ...
... Silicon Behind the Network™**



Core
switching equipment



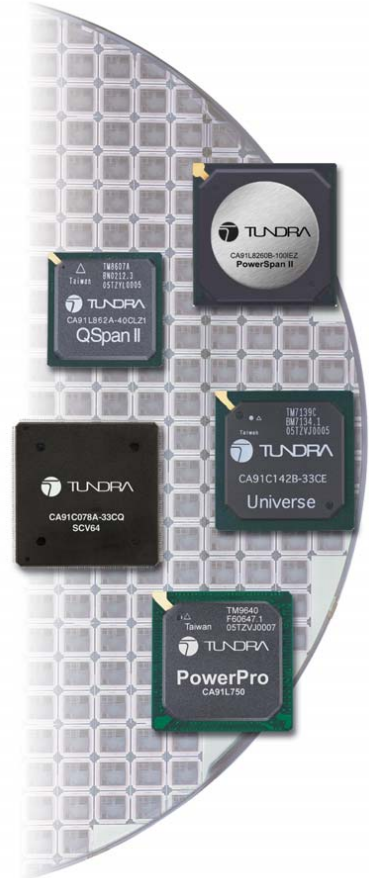
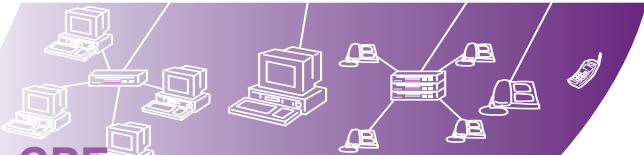
Edge
switching equipment



Access
transmission and access equipment



CPE
customer premise equipment



PCI-X and RapidIO: Tundra is at the forefront of defining new interconnect standards that address the demand for high performance, scalable equipment architectures.

Tundra provides semiconductor products that enable equipment designers to fully leverage the benefits of these new standards.

PCI-X

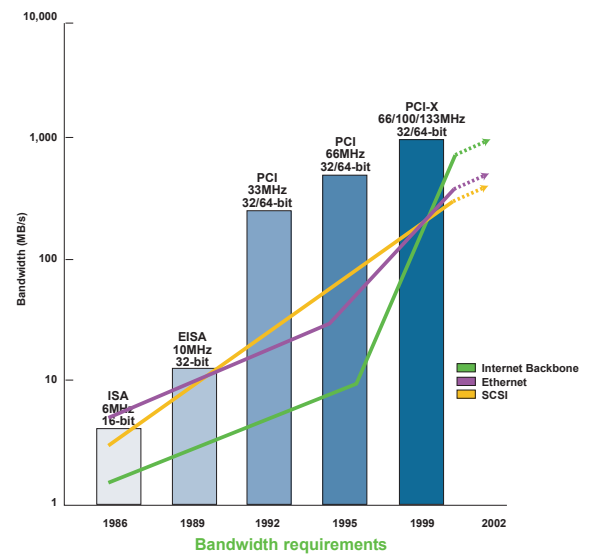
PCI-X is a high-speed mode of operation for PCI, a chip-level interface used to connect two or more I/O devices. PCI-X is compatible with PCI, ensuring evolution from older systems and option cards. The standard overcomes the I/O bottleneck that limits processing speed between a CPU and its peripherals. Through a more efficient protocol, PCI-X can support more than one Gbyte/second of sustainable I/O bandwidth at 64-bits and 133 MHz. This doubles the throughput of current 66 MHz, 64-bit buses.

As part of our ongoing commitment to provide next-generation System Interconnect to the leading communications infrastructure vendors, Tundra is helping to pioneer the new PCI-X interconnect standard.

Setting the standard for System Interconnect

Benefits

- Supports bandwidth-intensive applications that require operating bus speeds of up to 133 MHz, and one Gbyte per second transactions
- Backwards compatibility with PCI standard ensures PCI-based applications are fully supported
- Evolutionary I/O technology that increases system performance through greater throughput and efficiency
- Simplifies design
- Increases the fault isolation of the PCI bus
- Offers both added performance and flexibility, minimizing the trade-off between PCI slots and bus speed





RapidIO

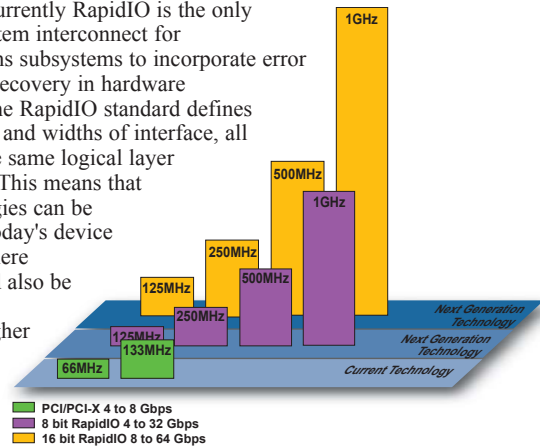
RapidIO is a new data communications standard for connecting chips on a circuit board, and for connecting circuit boards across a backplane. It is a high-performance, packet-switched, system interconnect architecture, primarily targeted at the networking industry. The interconnect architecture is an open standard which addresses the needs of embedded systems, primarily for the networking and communications markets.

The RapidIO architecture is designed to provide higher bandwidth, greater reliability, and faster time-to-market than other computer-based bus protocols. Compatible with network processors, communications processors, and digital signal processors, RapidIO offers software transparency and speeds in excess of 10 Gbits per second.

Tundra, along with other industry leaders in networking, communications, semiconductors, and embedded systems, founded the RapidIO Trade Association to develop and support the open standard. Tundra is an active member on the technical and marketing working groups. For more information on the RapidIO Trade Association and the RapidIO interconnect standard, please visit: www.rapidio.org

Benefits

- **Performance** - has low overhead and low latency: optimized as an "inside the box", device-level interface. Unlike other packetized system interconnect standards, RapidIO allows peer-peer transactions without the intervention of a host, providing the highest possible concurrency in intelligent I/O subsystems.
- **Functionality** - packet-switched, point-to-point interconnect to effectively connect host CPU's, network processors, memory, DSP's and I/O devices
- **Cost** - Because RapidIO is a memory-mapped I/O standard, there is no requirement to support a complex protocol stack as with other interconnect schemes, dramatically reducing the software development costs associated with migrating PCI based topologies to RapidIO. Also, I/O modules are readily available from FPGA and ASIC vendors, enabling custom parts to be developed quickly and effectively
- **Compatibility** - is software transparent; an extension of the microprocessor bus; allows direct, physical memory mapping of the entire machine
- **Reliability** - currently RapidIO is the only packetized system interconnect for communications subsystems to incorporate error detection and recovery in hardware
- **Scalability** - the RapidIO standard defines various speeds and widths of interface, all working on the same logical layer specification. This means that system topologies can be optimized to today's device capabilities where applicable, and also be positioned for tomorrow's higher performance requirements where appropriate



RapidIO Performance diagram

PowerSpan™ II: Proven Multi-Port PCI Bus Switch for Motorola PowerQUICC™ II and PowerPC™ Processors

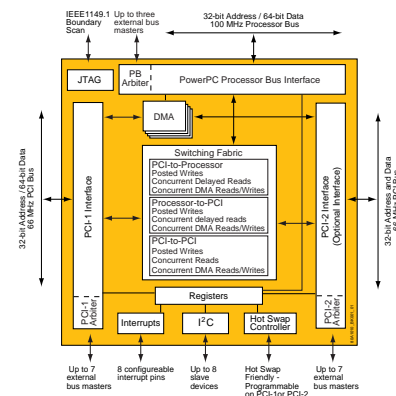
A revolutionary approach to improving communications system performance.

PowerSpan II provides an advanced switching fabric technology, Switched PCI, to interconnect Motorola processors such as the PowerQUICC II (MPC8260) to multiple PCI-bus segments. This switching fabric architecture offers significant benefits over conventional PCI bridge products, including minimizing transfer serialization and improving the burst performance and efficiency on the PCI and processor buses. These are key elements of I/O processor performance. Other PowerSpan II features include integrated PCI-to-PCI bus bridging, concurrent prefetch read capability, and multi-port Direct Memory Access (DMA) operation. PowerSpan II is available in Single or Dual PCI variants, which are up to 50 per cent smaller than the original PowerSpan. PowerSpan II comes with comprehensive Design Support Tools (DST) that provide designers with real-world software and hardware development environments, allowing them to solve design challenges and get to market quicker. As a result, PowerSpan II is the ideal choice as a proven, low-risk multi-port PCI Bus Switch for Motorola's portfolio set of PowerQUICC II processors.

Significantly improves system performance

Benefits

- Smaller packages reduce board area required for system design
- Flexible PCI interfaces enable PowerSpan II to meet many different application requirements
- Integrated, non-transparent PCI-to-PCI bridge connects traffic between the two PCI interfaces. This decreases individual component count and simplifies conventional CompactPCI board architecture
- Supports reads from multiple I/O devices in parallel, non-blocking streams which decreases bus latency
- Integrated PCI bus, processor bus arbiters decrease individual component count on boards
- The Tundra PowerQUICC II and PowerPC™ architecture expertise is passed to customers with the Design Support Tools
- Detailed design documentation including device manuals and application notes



PowerSpan II block diagram

Features

Packaging

- Single PCI PowerSpan II
 - 64-bit/66 MHz
 - 420 HSBGA: 1.27 mm ball pitch, 35 mm body size
 - 484 PBGA: 1.0 mm ball pitch, 23 mm body size
- Dual PCI PowerSpan II
 - 32-bit/66 MHz and 64-bit/66 MHz
 - 480 HSBGA: 1.27 mm ball pitch, 37.5 mm body size
 - 504 HSBGA: 1.0 mm ball pitch, 27 mm body size

Processor Support

- Direct connect interface for MPC8260, PowerPC 7400, 740, 750 and Wintegra WinPath™
- Up to 100 MHz bus frequency
- Programmable endian conversion
- MPC8260 Configuration Slave support for power-up options
- Eight programmable memory maps to PCI from the processor bus
- Processor bus arbiter with support for three requesters

PCI Support

- Integrated, non-transparent PCI-to-PCI bridge in the Dual PCI PowerSpan II
- PCI arbiters on each PCI interface
- CompactPCI Hot Swap Friendly Support
- I₂O messaging unit

Design Support Tools

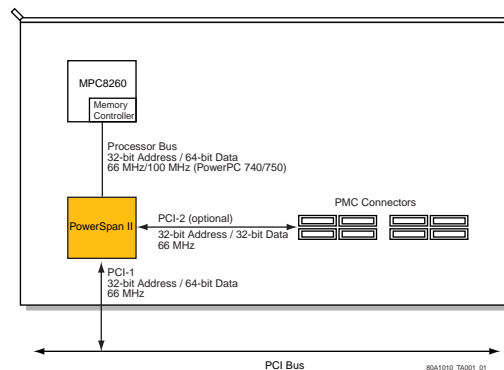
Our extensive suite of Design Support Tools (DST) consists of hardware and software development tools that are available on our website and the DST CD-ROM. The Reference Design Kit (RDKit) is an ideal platform for your software and hardware development and debug needs.

Applications

- ADSL Concentrators
- VoIP Gateways
- Ethernet Switches
- Virtual Private Network (VPN) Equipment
- MPEG 2 Encoders
- Exchange Carrier Switching Equipment



NEW!



PowerSpan II application diagram

PowerPro™: The Industry's Most Flexible, Low Latency Discrete PowerPC™ Memory Controller

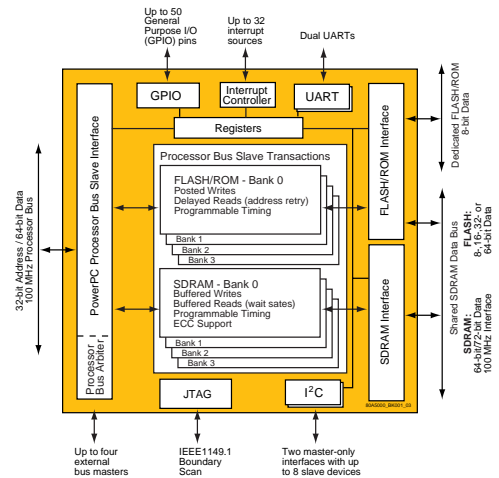
PowerPro provides support for a wide array of PowerPC processors.

PowerPro delivers memory control support for the PowerPC 750 and 7400 processors. PowerPro provides the flexibility of a PCI-independent memory controller to a wide array of PowerPC applications. In PowerPC 750/MPC8260 designs, PowerPro enables ECC memory protection, which is not otherwise available from the MPC8260's memory controller in this application. PowerPro provides and supports PC-100 SDRAM control, ECC protection, 8/16/32/64-bit Flash, and other local peripheral devices such as UARTs. The device comes with a comprehensive Design Support Tools (DST) suite that lets designers test it in their specific working environment and design supporting software quickly and easily.

Low latency memory access

Benefits

- The first discrete, off-the-shelf memory controller for PowerPC processors
- Increases throughput with memory system optimization
- Provides industry's most flexible page management scheme
- Supports many peripherals, such as UARTs, timers and interrupt controllers



PowerPro block diagram

Features

Packaging

- 376 PBGA, 1 mm ball pitch package

Processor Support

- Direct connect with MPC8260 and PowerPC 740/750/7400
- 64-bit /100 MHz
- Address and data parity
- PowerPC bus arbiter

SDRAM Interface

- PC-100 compliant
- Optional ECC protection
- Direct control of data latching
- 64-bit data bus - 72-bit with ECC
- 32 MBytes to 4 GBytes of SDRAM
- Read Ahead buffer
- Flexible page management - independently controls up to 32 pages.

Integrated Features

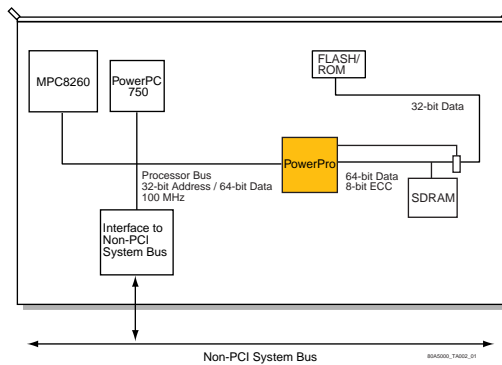
- 50-bit General Purpose I/O port
- Dual Universal Asynchronous Receiver Transmitter (DUART)
- Interrupt Controller
- I²C Interface

Design Support Tools

Our extensive suite of Design Support Tools (DST) consists of hardware and software development tools that are available on our website and the DST CD-ROM.

Applications

- ADSL concentrators
- Wireless base stations
- VoIP gateways
- Ethernet switches
- Virtual Private Network (VPN) equipment
- Optical Networking Equipment
- Exchange carrier switching equipment



PowerPro application diagram

QSpan™ II: Proven PowerQUICC™-to-PCI System Interconnect Device

QSpan II provides the most cost-effective, high performing PCI interface in the smallest footprint on the market (17 mm x 17 mm).

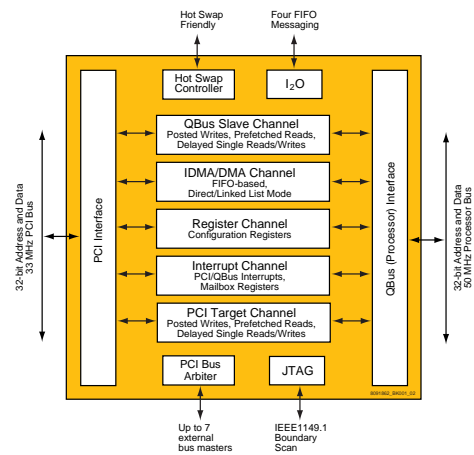
QSpan II is the industry-proven leader in bridging Motorola's range of communications processors to standard PCI buses in the latest communications systems. QSpan II is a direct-connect PCI bridge for the Motorola PowerQUICC™ (MPC8xx), and QUICC™ (MC68360), and processors.

The QSpan II contains an integrated PCI Bus Arbiter which allows designers to save board real estate and cost. As a result, QSpan II is the ideal choice as a proven, low latency device that brings PCI-based products to market faster and at less cost. The device comes with a comprehensive Design Support Tools (DST) suite that lets designers test it in their specific working environment and design supporting software quickly and easily.

Redefining board architecture

Benefits

- The QSpan II advanced features, including integrated PCI Arbiter, and the industry's first and smallest package- almost 50 per cent smaller than the original QSpan and our competitors - enable designers to develop lower cost, sophisticated systems with increasingly higher channel density
- Industry-proven PCI System Interconnect device
- QSpan II Design Support Tools reduces customer's design hours and time-to-market
- Backwards compatible with QSpan™



QSpan II block diagram

Features

Packaging

- Commercial and Industrial variants
- Offered in two 256-pin PBGA packages: a 17 x 17 mm (with a 1.0 mm ball pitch) and a 27 x 27 mm (with a 1.27 mm ball pitch)

Processor Support

- Direct connect for PowerQUICC (MPC8xx) and QUICC (MC68360) processors
- Supports prefetched reads and burst writes at up to 50 MHz
- Programmable bus parity/master-slave capability

PCI Support

- Integrated PCI Bus Arbiter
 - Supports up to seven external bus masters
- PCI v2.2 compliant
- CompactPCI Hot Swap Friendly
- Zero wait-state bursts, prefetched reads on PCI
- Serial EEPROM interface for plug and play compatibility
- Universal (3.3V/5V) PCI buffers

Other

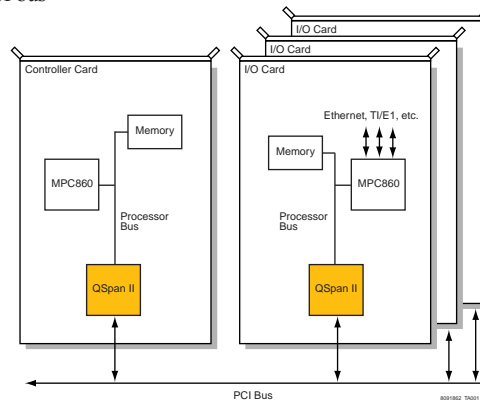
- High performance Direct Memory Access (DMA) engine
 - Direct and Linked-List (Scatter/Gather) mode
 - Independent 256-byte FIFO and Mailbox registers (4)
- Intelligent I/O (I₂O) messaging
- Comprehensive Design Support Tools

Design Support Tools

Our extensive suite of Design Support Tools (DST) consists of hardware and software development tools that are available on our website and the DST CD-ROM. The Reference Design Kit (RDKit) is available in two versions - CompactPCI and Desktop PCI.

Applications

- Network interface cards
- Routers
- Servers
- VoIP Gateways
- Process control equipment
- Data acquisition systems
- Any 68K-based or PowerPC™-based system migrating to the PCI bus



QSpan II application diagram

Universe II™: The Industry-leading High Performance 64-bit VMEbus-to-PCI Interconnect

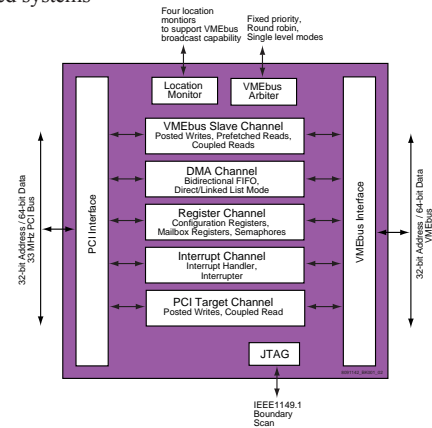
The interface of choice for the latest generation of PCI-to-VME interconnection.

Universe II supports the latest VME applications with its high performance 64-bit VMEbus interface and fully compliant, 32-bit or 64-bit, PCI bus interface. Its zero-wait state implementation, multi-beat transactions, and support for bus parking ensure high performance on the PCI bus. The device is ideally suited for CPU boards functioning as both master and slave in the VMEbus system, and that require access to PCI systems.

High performance interface

Benefits

- Provides high performance on the PCI bus
 - Zero-wait state implementation
 - Multi-beat transactions
 - Supports bus parking
- Features a wide range of VMEbus address and data transfer modes
 - A32/A24/A16 master and slave
 - D64/D32/D16/D08 master and slave
 - MBLT, BLT, ADOH, RMW, LOCK, location monitors
- Supports nine user programmable slave images on VMEbus and PCI bus ports
- Provides seven interrupt lines on either bus and flexible mapping of software and hardware sources of hardware interrupt
- Provides four mailboxes and location monitor for message-oriented systems



Universe II block diagram

Features

- Industry-proven, high performance 64-bit VMEbus interconnect
- Fully compliant, 32-bit or 64-bit, 33 MHz PCI bus interconnect
- Integral FIFOs for write posting to maximize bandwidth utilization
- Programmable DMA controller with Linked-List mode (Scatter/Gather) support
- Flexible interrupt logic
- Sustained transfer rates up to 60-70 Mbytes/s
- Extensive suite of VMEbus address and data transfer modes
- Automatic initialization for slave-only applications
- Flexible register set, programmable from both the PCI bus and VMEbus ports
- Full VMEbus system controller
- Support for Read Modify Write (RMW), Address Only with Handshake (ADOH), PCI LOCK # cycles, and semaphores
- Commercial, industrial, and extended temperature variants
- IEEE 1149.1 JTAG
- Available in:
 - 25 mm x 25 mm, 361-contact dimpled ceramic Ball Grid Array (DBGA)
 - 35 mm x 35 mm, 313-contact plastic BGA packages

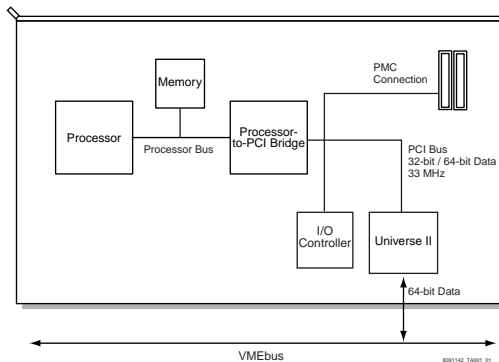
Design Support Tools

Tundra understands your design challenges and works to help you overcome them. The Universe II is supported by a number of tools that get you to market faster, including IC documentation, IC models, and a VxWorks driver.

Applications

- Single board computers
- Telecommunications equipment
- Test equipment
- Command and control systems
- Factory automation equipment
- Medical equipment
- Military
- Aerospace

Bridges



Universe II application diagram

SCV64™: The High Performance VME64 Bus Bridge

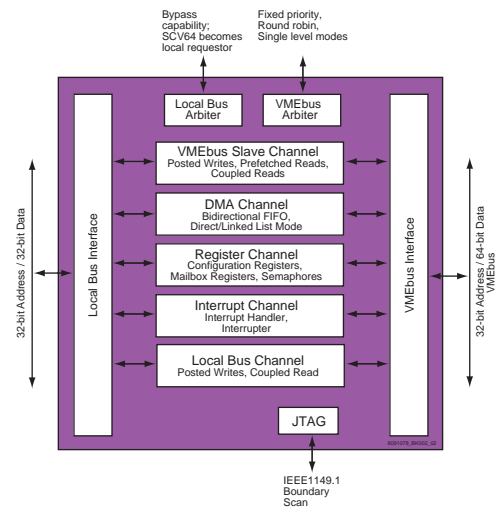
The industry-proven VME64-to-host bus bridge supports the latest generation of VME applications.

SCV64 is a VME64-to-host processor bridge that supports data transfer rates of up to 70 Mbytes per second. SCV64 uses internal FIFOs to decouple data transfers between the VMEbus and local bus to compensate for mismatches in relative bus performance. This allows each bus to operate at its optimal rate, unobstructed by the other. Block transfer capability (both BLT and MBLT), an integral DMA controller, an asynchronous VMEbus interface, and 40 MHz local bus operation ensure that the SCV64 is the choice for designs requiring high-performance interfaces.

High speed VME64 data path

Benefits

- Cost-effective, industry-proven VME64-to-host bus bridge
- Supports the latest generation of VME applications



SCV64 block diagram

Features

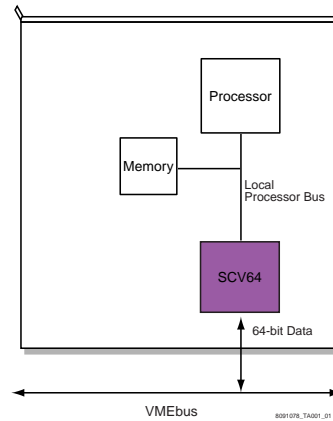
- Proven VME64 compliance
- Local bus interface support for a variety of processors: Intel 'x86 and 'ix60; Motorola '680x0; and Texas Instruments 'TMS320Cx0.
- Integral write posting FIFOs to optimize bandwidth utilization
- Programmable bi-directional DMA controller
- Asynchronous VMEbus interface for maximum throughput
- 60 to 70 Mbytes per second transfer rates
- Complete suite of VMEbus address and data transfer modes
- Automatic initialization for slave-only applications (supports ability to tap SCV64 without on-board intelligence)
- Flexible register set, programmable from both the local bus and VMEbus ports
- Full VMEbus system controller functionality
- Available in 304-lead PQFP and 299-pin PGA packages

Design Support Tools

Tundra understands your design challenges and works to help you overcome them. The SCV64 is supported by a highly efficient technical team and IC documentation.

Applications

- Control systems (military and commercial)
- Application accelerators
- Video graphic
- Communication systems
- DSP systems such as medical imaging



SCV64 application diagram

Tundra Design Support Tools

Our tools cut development time, risk, and cost.

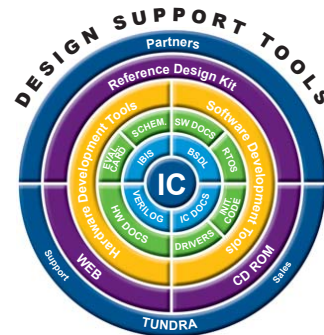
Tundra understands your design challenges and works to help you overcome them. We are committed to making our products easy to use. A powerful suite of Design Support Tools (DST) for each of our devices helps accelerate and simplify your product designs. Tools include comprehensive documentation, extensive Reference Design Kits including third-party evaluation boards and software, and easy access to skilled technical support staff. Most tools are available through our website within our DST section or Third Party Partner page. Design Support Tools help you integrate our ICs into your system designs quickly and shorten your time-to-market.

**Ease of use =
Ease of design + Ease of access**

Design Support Tools

- Reference Design Kit (RDK) and evaluation boards (see Third Party Partner offerings)
- Software Development Kit (SDK): Tundra offers free source code for device initialization code, drivers, libraries, RTOS BSPs, host and/or embedded applications where applicable. Software is available through third party partners in support of most RDKs.
- IC models: Analog simulation: IBIS, Functional simulation: Verilog, Manufacturing/Test: BSDL
- Reference schematics and device symbols
- IC User Manuals
- Application notes
- Hardware design manuals
- Software design manuals

These tools are available through Tundra DST section of our web page and through third party partners.



Third Party Partner Program

The goal of the Tundra partner program is to provide customers with increased "Ease of Use" value through our partner solutions. This represents a fundamental part of our Design Support Tool philosophy.

Tundra partners are leaders in the embedded systems community, providing a range of hardware & software design and debug tools that complement Tundra products. These tools address the demands for shorter customer development cycles. Partner products include: RTOS, development and diagnostic tools, and evaluation boards. Together with our partners, Tundra delivers the product coverage, quality, expertise, and support required to meet the Ease of Design and Ease of Access needs of our customers.

The following is a cross reference of Tundra products to related partner products and services.

Product	RTOS	Development & Diagnostic Tools	Evaluation Board	Design Services
QSpan	WindRiver	WindRiver	WindRiver	WindRiver
QSpan II	WindRiver QNX	WindRiver	Tundra	WindRiver
PowerSpan	WindRiver OSE QNX	WindRiver	Tundra WindRiver	Blackline WindRiver
PowerSpan II	WindRiver	WindRiver	WindRiver	Blackline WindRiver

Tundra Design Support Tools & Partners



blackline systems

OSE systems
An Enea Company

QNX RTOS Build a more reliable world

WindRiver

Committed to customer support

Australia

Impact Components Pty. Ltd.
Unit 2, 17-19 Melrich Road
Bayswater VIC 3153
Australia
Tel: 61-3-9760-4222
Fax: 61-3-9760-4210

Impact Components Pty. Ltd.
Suite 5, Level 1, 124 Forest Road
Hurstville NSW 2220
Australia
Tel: 61-2-9585-5577
Fax: 61-2-9585-5579

Memec Pty. Ltd.
Unit 14, 1048 Beaudesert Road
Coopers Plain QLD 4108
Australia
Tel: 61-7-3246-5214
Fax: 61-7-3275-3662

Austria

Atlantik Elektronik GmbH
Hadikgasse 74/2
A-1140 Wien
Austria
Tel: 43-1-897-2637
Fax: 43-1-897-2737

Belgium, Luxembourg, The Netherlands

Atlantik Elektronik GmbH
Industrieweg Oost 13u Elst,
Netherlands NL 6662 NE
Tel: 31-481-365180
Fax: 31-481-365181

Eastern Canada

Neutronics Components Ltd.
232 Herzberg Rd., Ste. 201
Ottawa, ON K2K 2A1
Tel: 613-599-1263
Fax: 613-599-4750

Neutronics Components Ltd.
6305 Northam Dr., Ste. 5
Mississauga, ON L4V 1W9
Tel: 905-672-3378
Fax: 902-672-5950

Neutronics Components Ltd.
189 Hymus Blvd., Ste. 604
Pointe Claire, PQ H9R 1E9
Tel: 514-428-5838
Fax: 514-428-5837

Western Canada

Electronic Sources, Inc.
12501 Bel-Red Road, Ste. 208
Bellevue, WA 98005
Tel: 619-549-5360
Fax: 619-549-5365

Denmark

Impact MEMEC
Tempovej 16
DK-2750 Ballerup, Denmark
Tel: 45-44-44-6666
Fax: 45-44-44-6669

Norway

Impact MEMEC
P.O. Box 194
N-1378 Nesbru
Norway
Tel: 47-66-77-6500
Fax: 47-66-77-6501

Finland

Impact MEMEC
Kutojantie 7
FIN-02631 Espoo
FINLAND
Tel: 358-9-2535-4400
Fax: 358-9-2535-4450

France

Impact MEMEC
4, rue de la Couture; Silic 250
Rungis, cedex,
France 94568
Tel: 33-1-49-78-9494
Fax: 33-1-49-78-0324

Germany

Atlantik Elektronik, GmbH
Fraunhoferstrasse 11A
82152 Planegg
Germany
Tel: 49-89-89505-0
Fax: 49-89-89505-100

Hong Kong & China

Solomon QCE Ltd.
Rm 1901
19/ F. Nan Fung Centre
264-298 Castle Peak Road
Tsuen Wan, N.T. Hong Kong
Tel: 852-2493-4202
Fax: 852-2413-6307

India

Hynetic Electronics
78/1, 3rd Cross
Gavipuram Extension,
Bangalore, 560019, India
Tel: 91-080-6614627
91-080-6524577
Fax: 91-080-6614649
91-080-6524073

Ireland

Impact MEMEC
Lock Quay
Limerick, Ireland 123
Tel: 353-61-316-068
Fax: 353-61-316-069

Israel

*Migvan Technologies and
Engineering Ltd.*
13 Hashiloach Street
P.O. Box 7022
Petach-Tikva 49170, Israel
Tel: 972-3-9240784
Fax: 972-3-9240787

Italy

Impact MEMEC
Via Cesare Cantu 29
Cinisello Balsamo,
Italy 20092
Tel: 39-02-61-29-0800
Fax: 39-02-61-29-0816

Japan

Tokyo Electron Device Ltd.
No. 1, Higashikata-cho,
Tsuzuki-ku,
Yokohama-City, Kanagawa,
224-0045 Japan
Tel: 81-45-474-7032
Fax: 81-45-474-7016

Korea

ForeTek Microsystems Co. Ltd.
#202, Youngkwang, B/D 254-17,
Nonhyun-dong, Kangnam-ku
Seoul, Korea 135-010
Tel: 81-45-474-7044
Fax: 81-45-474-7034

Mexico/South America

OM Associates
Univ. de las Americas #9712
Frac: Residencial Universidad
Chihuahua,
Chihuahua, Mexico 31106
Tel: 521-421-6345
Fax: 521-421-6345

OM Associates

Av. Lopez Mateos Sur
1480.201 Col. Chapalita
Guadalajara, Jalisco
Mexico 45040
Tel: 523-647-7881
Fax: 523-647-7868

OM Associates

Av. Morones Prieto #2805,
Pte. Suite 1001
Torre GIA, Piso 10
Col. Lomas de San Fco.
Monterrey, Nuevo Leon
Mexico 64710
Tel: 528-399-0093
Fax: 528-399-0094

New Zealand

Impact Components Pty.
Unit 5, 9 Washington Way
Christchurch, New Zealand
Tel: 64-3-379-3889
Fax: 64-3-379-3072

Singapore

Excelpoint Systems (PTE) Ltd.
24 Kaki Bukit Crescent
Kaki Bukit TechPark 1
Singapore 416255
Tel: 65-741-8966
Fax: 65-741-8980

South Africa

Impact MEMEC
Unit 5, Bartlett Lake Office Park
186 Leith Road
Bartlett, Gauteng
South Africa 1459
Tel: 27-11-897-8600
Fax: 27-11-918-3193

Spain & Portugal

Impact MEMEC Iberica
c/ Ochandiano 8, 2 Izda
Centro Empresarial El Plantio
Madrid, Spain 28023
Tel: 34-91-307-68-93
Fax: 34-91-372-94-53

Sweden

Impact MEMEC
Ulvsundavagen 106C
Box 11113
S-161 11 Bromma, Sweden
Tel: 46-8-86-3466
Fax: 46-8-26-2275

Switzerland

Egli, Fischer & Co. Ltd. Zurich
Gotthardstrasse 6, Ch-8022
Zurich, Switzerland
Tel: 41-1-209-8111
Fax: 41-1-201-2275

Taiwan

Toptrend Technologies Corp
8F-2, No. 15, Lane 360
Sec. 1, Nei-Hu Road
Taipei, Taiwan R.O.C.
Tel: 886-2-2659-3636
Fax: 886-2-2659-1518

United Kingdom

Impact MEMEC
Thame Park Road
Thame, Oxfordshire
United Kingdom OX9 3UQ
Tel: 44-1-844-261188
Fax: 44-1-844-261681

Central U.S.

Illinois, Michigan, Wisconsin
Horizon Technical Sales
4340 Cross Street,
Downer's Grove, IL 60106
Tel: 630-852-2500
Fax: 630-852-2520

Alabama, Georgia, Mississippi, North Carolina, South Carolina, Tennessee

BITS, Inc.
2707 Artie Street,
Building 100, Suite 17
Huntsville, AL 35805
Tel: 256-534-4020
Fax: 256-534-0410

BITS, Inc.
5425 Sugarloaf Parkway
Suite 2201
Lawrenceville, GA 30043
Tel: 770-513-8610
Fax: 770-513-8680

BITS, Inc.
940 Main Campus Drive, Ste. 120
Raleigh, NC 27606
Tel: 919-807-1000
Fax: 919-807-1001

**Tundra
Sales Network**

Texas, Arkansas, Louisiana, Oklahoma

OM Associates
11410 Jollyville Rd., Ste. 2201
Austin TX 78759
Tel: 512-794-9971
Fax: 512-794-9987

OM Associates
690 W. Campbell Rd.
Richardson, TX 75080
Tel: 972-690-6746
Fax: 972-690-8721

OM Associates
1200 Golden Key Circle,
Suite 365
El Paso, TX 79925
Tel: 915-591-9123
Fax: 915-590-3731

OM Associates
20405 S.H. 249, Suite 170
Houston, TX 77070
Tel: 281-376-6400
Fax: 281-376-6490

**Minnesota, North and South
Dakota, Wisconsin**
Electromec Sales Inc.
1601 East Highway 13, Ste. 102
Burnsville, MN 55337
Tel: 952-894-8200
Fax: 952-894-9352

Iowa
Electromec Sales Inc.
1721 Applewood Place N.E.
Cedar Rapids, IA 52402
Tel: 319-399-1917
Fax: 319-399-1939

**Kansas, Missouri,
Nebraska, Southern Illinois,**

Please contact Tundra
Semiconductor directly at:
1-800-267-7231

Eastern U.S.

D.C., Maryland, Virginia
Chesapeake Technologies
7262 Cradle Rock Way
Columbia, MD 21045
Tel: 301-236-0530
Fax: 301-384-9596

**New York, Connecticut, Maine,
Massachusetts, New Hampshire,
New Jersey, Rhode Island,
Vermont**
Daner Hayes Inc.
300 Eliot Street, Suite 342
Ashland, MA 01721
Tel: 508-881-0400
Fax: 508-881-8227

Daner Hayes Inc.
2-22 Thomas St.
Portland, ME 04102-3638
Tel: 207-772-2999
Fax: 207-772-6111

Daner Hayes Inc.
26 Ellen Court
Wayside, NJ 07712
Tel: 732-918-0302
Fax: 732 918 0302

Daner Hayes Inc.
42 Obtuse Road South
Brookfield, CT 06804
Tel: 203-740-1091
Fax: 203 740 0480

Upstate New York
Supertech
230 Tarrington Road
Rochester, NY 14609
Tel: 585-288-1403
Fax: 585-288-5112

Supertech
33 Wildherd Drive
Henrietta, NY 14467
Tel: 585-321-1893
Fax: 585-288-5112

**Ohio, Western Pennsylvania,
Kentucky, West Virginia**

DDolfuss-Root & Company
P.O. Box 1468
35 North Liberty Street
Powell, OH 43065-9289
Phone: 614-781-0725
Fax: 614-781-0728

Dolfuss-Root & Company
7550 Lucerne Dr., Ste. 410
Middleburg Heights, OH 44130-6583
Phone: 440-816-1660
Fax: 440-816-0861

Mountain U.S.

**Colorado, Idaho, Montana, Utah,
Wyoming**
Thorson Rocky Mountain, Inc.
7108 South Alton Way, Building-D
Englewood, Colorado 80112
Tel: 303-773-6300
Fax: 303-773-6302

Thorson Rocky Mountain, Inc.
141 E 5600S, Ste. 210
Salt Lake City, UT 84107
Tel: 801-264-9665
Fax: 801-264-9881

Thorson Rocky Mountain, Inc.
2668 E. Hampshire Court
Eagle, ID 83616
Tel: 208-938-8090
Fax: 208-938-8070

**Arizona, New Mexico,
Southern Nevada**
Earle Associates Arizona
1900 W. University Dr., Ste. 222
Tempe, AZ 85281
Tel: 480-921-3305
Fax: 480-921-3316

Earle Associates
650 Cougar Loop, N.E.
Albuquerque, NM 87122
Tel: 505-856-7351
Fax: 505-856-1527

Western U.S.

**Northern California,
Northern Nevada**
Nexus, Inc.
Technology Sales
1288 Hammerwood Ave.
Sunnyvale, CA 94089
Tel: 408-321-0201
Fax: 408-321-7408

San Diego
Earle Associates
7585 Ronson Road, Ste. 200
San Diego, CA 92111
Tel: 858-278-5441
Fax: 858-278-5443




Oregon, Washington State
Electronic Sources, Inc.
6800 SW 105th, Ste. 210
Beaverton, OR 97008
Tel: 503-627-0838
Fax: 503-627-0238

Electronic Sources, Inc.
12501 Bel-Red Road, Ste. 208
Bellevue, WA 98005
Tel: 425-451-3500
Fax: 425-451-1038

Southern California
Infinity Sales Inc.
3002 Dow Avenue, Ste. 306
Tustin, CA 92780
Tel: 714-669-8520
Fax: 949-833-0303

Infinity Sales Inc.
26560 W. Agoura Rd., Ste. 203
Calabasas, CA 91302
Tel: 818-880-6480
Fax: 818-880-1922

Ordering Information



Product Name	Product Code	Frequency	Voltage	Temperature	Package	Pin Count
PowerSpan II 	PowerSpan – Dual PCI					
	CA91L8200-100CE	100MHz	3.3/2.5	0° to 70°C	37.5 mm BGA	480
	CA91L8200-83IE	83MHz	3.3/2.5	-40° to 85°C	37.5 mm BGA	480
	PowerSpan – Single PCI					
	CA91L8260-100CE	100MHz	3.3/2.5	0° to 70°C	35 mm BGA	420
	CA91L8260-83IE	83MHz	3.3/2.5	-40° to 85°C	35 mm BGA	420
	PowerSpan II – Dual PCI					
	CA91L8200B-100CE	100MHz	3.3/2.5	0° to 70°C	37.5 mm BGA	480
	CA91L8200B-100IE	100MHz	3.3/2.5	-40° to 85°C	37.5 mm BGA	480
	CA91L8200B-100CL	100MHz	3.3/2.5	0° to 70°C	27 mm BGA	504
	CA91L8200B-100IL	100MHz	3.3/2.5	-40° to 85°C	27 mm BGA	504
	PowerSpan II – Single PCI					
	CA91L8260B-100CE	100MHz	3.3/2.5	0° to 70°C	35 mm BGA	420
	CA91L8260B-100IE	100MHz	3.3/2.5	-40° to 85°C	35 mm BGA	420
	CA91L8260B-100CL	100MHz	3.3/2.5	0° to 70°C	23 mm BGA	484
CA91L8260B-100IL	100MHz	3.3/2.5	-40° to 85°C	23 mm BGA	484	
PowerPro 	CA91L750-100IL	100MHz	3.3/2.5	-40° to 85°C	PBGA	376
QSpan II 	CA91L862A-40CE	40MHz	3.3	0° to 70°C	27 mm PBGA	256
	CA91L862A-50CE	50MHz	3.3	0° to 70°C	27 mm PBGA	256
	CA91L862A-50IE	50MHz	3.3	-40° to 85°C	27 mm PBGA	256
	CA91L862A-40CL	40MHz	3.3	0° to 70°C	17 mm PBGA	256
	CA91L862A-50CL	50MHz	3.3	0° to 70°C	17 mm PBGA	256
	CA91L862A-50IL	50MHz	3.3	-40° to 85°C	17 mm PBGA	256

*** please call Tundra for QSpan ordering information***

Tundra Products
at a glance



Tundra Semiconductor Corporation
603 March Road
Ottawa, ON K2K 2M5 CANADA
1-800-267-7231
(613) 592-0714
fax (613) 592-1320
www.tundra.com

Product Name	Product Code	Frequency	Voltage	Temperature	Package	Pin Count
Universe II 	CA91C142B-33CE	33MHz	5	0° to 70°C	35 mm PBGA	313
	CA91C142B-33IE	33MHz	5	-40° to 85°C	35 mm PBGA	313
	CA91C142B-25EE	25MHz	5	-55° to 125°C	35 mm PBGA	313
	CA91C142D-33CE	33MHz	5	0° to 70°C	35 mm PBGA	313
	CA91C142D-33IE	33MHz	5	-40° to 85°C	35 mm PBGA	313
	CA91C142D-25EE	25MHz	5	-55° to 125°C	35 mm PBGA	313
	CA91C142B-33CB	33MHz	5	0° to 70°C	35 mm DBGA	361
	CA91C142B-33IB	33MHz	5	-40° to 85°C	35 mm DBGA	361
	CA91C142B-25EB	25MHz	5	-55° to 125°C	35 mm DBGA	361
SCV64 	CA91C078A-33CQ	33MHz	5	0° to 70°C	40 mm PQFP	304
	CA91C078A-40CQ	40MHz	5	0° to 70°C	40 mm PQFP	304
	CA91C078A-25IQ	25MHz	5	-40° to 85°C	40 mm PQFP	304
	CA91C078A-33IQ	33MHz	5	-40° to 85°C	40 mm PQFP	304
	CA91C078A-33CG	33MHz	5	0° to 70°C	2" CPGA	299
	CA91C078A-40CG	40MHz	5	0° to 70°C	2" CPGA	299
	CA91C078A-25EG	25MHz	5	-55° to 125°C	2" CPGA	299
	CA91C078A-33EG	33MHz	5	-55° to 125°C	2" CPGA	299

For the most current product information and for information regarding Development Boards, please visit www.tundra.com or contact your local Sales office.

Note

0° to 70°C = Commercial temperature
 -40° to 85°C = Industrial temperature
 -55° to 125°C = Extended temperature

www.tundra.com



Tundra Semiconductor Corporation

603 March Road
Ottawa, Ontario
K2K 2M5 CANADA

1-800-267-7231
613-592-0714
fax 613-592-1320

TUNDRA is a registered trademark of Tundra Semiconductor Corporation (Canada, U.S., and U.K.).

TUNDRA, the Tundra logo, PowerSpan II, PowerPro, QSpan II, SCV64, Universe II, and Silicon Behind the Network are trademarks of Tundra Semiconductor Corporation.

All other registered and unregistered marks (including trademarks, service marks and logos) are the property of their respective owners. The absence of a mark identifier is not a representation that a particular product name is not a mark.

© Copyright 2002 Tundra Semiconductor Corporation.
All rights reserved.

Information subject to change without notice.
8000000_MD002_05