

## TriStation U2 Series

The Next UltraSPARC™ Generation

- ▲ Multiprocessor technique
- ▲ Upgradeable CPU-Modules up to 400 MHz
- ▲ Ultra™ Port Architecture delivers throughput up to 2.6 GByte/sec
- ▲ Built-in Fast-Wide SCSI-2
- ▲ 100% operating system & software compatible to the original Sun Ultra™ series

ULTRASPARC  
DRIVEN



### TriStation U2: The best trends of UltraComputing™

The next generation of the TRITEC's successful UltraSPARC™ systems provide a flexible and scalable enterprise resource that is easily adaptable to meet your dynamically changing organizational needs.

TRITEC U2 models help to create an open, high-performance environment capable of solving a variety of today's technical and commercial problems.

The concept behind the TRITEC U2 family is simple – combine the strengths of time-proven, high-performance symmetric multiprocessing (SMP) with the performance and system resource scalability potential that can be achieved through a parallel architecture. The result is a robust, high-performance architecture that enables highly parallel processing.

With a combination of exceptional processor speed, high-bandwidth networking, accelerated graphics, and outstanding application performance, the TriStation U2 from TRITEC introduces a new area of computing. This is not achieved by upgrading one component such as the microprocessor. It is a function of the whole system: the processor, the data paths, the graphics subsystem, the external interfaces, the networking capabilities, the software.

The TriStation U2 architecture answers the four major challenges of desktop computing today: computational performance, visual computing, fast networking, and network-based software.

### The best trends in computing come together in TRITEC's powerful TriStation U2

TRITEC's TriStation U2 feature highly accelerated graphics, imaging, and multimedia technologies, and built-in 100 MBit/sec Fast Ethernet networking. All at a very affordable price.

For everything from research, development, and design to your most demanding business applications, TRITEC's TriStation U2 systems give you all the advanced features you need to improve not only the speed, but also the quality of your work.

In fact, the TriStation U2 gives you a performance that, until now, was only available on systems costing much more. Which means it's now possible to put supercomputer power on every desktop, allowing new levels of application performance and interactivity with everyone on your network.

### Computational Performance

At the heart of these new systems is the 64-bit UltraSPARC™ microprocessor. Once again demonstrating the incredible scalability of the SPARC™ architecture, the new chip combines high processor speeds with an efficient four-way superscalar design for unprecedented desktop performance. Its nine-stage pipeline can issue up to four instructions per cycle.

And the UltraSPARC™ processor's revolutionary Visual Instruction Set (VIS™) – the industry's most flexible and comprehensive array of on-chip multimedia, graphics, and imaging technologies – delivers the new era of digital multimedia right to your desktop.

Whichever model you choose, you will know these new desktop systems maintain binary compatibility with our entire product family. Also, you can still run any of more than 10,000 solutions available on the SPARC/Solaris™ platform; but now faster and better, without recompiling.

**Network computing at its best.**

A growing number of organizations are upgrading their older, 10-megabit-per-second Ethernet local area networks with new 100-megabits-per-second Fast Ethernets. The higher data rates are needed to carry the profusion of new media types (e.g. video, images and audio) and support new real-time collaborative applications such as video-conferencing and shared whiteboards. The TriStation U2 architecture is the first to feature Fast Ethernet capability built into the system motherboard, saving customers the cost of adding boards.

**Creator powers your creativity**

In addition to cost-effective 8-bit graphics solutions for EDA, CASE, and a wide range of business applications. Also, you can choose either the TriStation U2 Creator or TriStation U2 Creator3D which bring visual computing to a new level.

Creator graphics, tightly coupled to the processor through the UPA interconnect, allow the entire system to act as a graphics engine, utilizing floating-point processor speed, VIS capabilities, and memory capacity to their fullest. At the same time, 3D-RAM technology combines the best features of DRAM, SRAM, and VRAM into one chip and delivers up to 600 million pixel operations per second. Other designs costing much more just can't keep up. This powerful graphics offering gives you 24bit, single-buffered 2-D graphics, and imaging; enabling you to pan, zoom, rotate, convolve, and do color conversion at unprecedented speeds. It's the ideal solution for full-color prepress, publishing, medical, or GIS.

When you need all that and more, there is Creator3D, with all the fast image processing and MPEG video decompression of Creator graphics. Also included are accelerated 24-bit, double- and Z-buffered 3-D rendering which are perfect for visualization, MCAD, medical imaging, and molecular modeling.

**Creator2D Graphics System**

The midrange TriStation U2 Creator system, with 24-bit true-color graphics capability, was designed from the ground up for interactive graphics, imaging, video playback, and real-time information processing.

**Creator 3D Graphics System**

The TriStation U2 Creator 3D system combines the best of everything: true-color graphics, high-speed image

processing, video decompression, and 3-D rendering capabilities; thus taking visual computing to a new level.

**UPA provides high throughput**

To make the most of this powerful processor, the Ultra™ Port Architecture (UPA), a crossbar-switched interconnect was developed to enable multiple simultaneous data transfers and to provide ten times the bandwidth of previous bus-based technologies. Now data transfers between processor, memory, I/O, and graphics are faster than ever before; that means vastly improved application performance. Data transfer rates up to 2.6 GByte/sec (burst) and 1.2 GByte/sec (sustained) are provided by the UPA.

**Built-in Fast-Wide SCSI and 100/10 MBit Ethernet speeds up the network**

As with all TRITEC systems, the TriStation U2 desktop will integrate into even the most complex multivendor environment. With 100-MBit/sec Fast Ethernet as a fully integrated, standard feature, the High-End TriStation U2 systems deliver 10 times the bandwidth of other desktops while maintaining compatibility to existing 10Mbit/sec Ethernet connections. And the Fast-Wide, 20-MByte/sec SCSI-2 interface delivers accelerated performance from those applications you depend on most

**Four SBus Slots provide powerful expansion options**

Once more the SBus has been optimized by 16 additional 64Byte streaming buffers and delivers now transfer rates of 120/100 MBytes/sec (write/read). As a unique feature TRITEC's TriStation U2 provides four SBus-slots that let you use double and quad SBus-cards. With this feature you can easily have multiple graphics adapters and networking devices in your system. If even four expansion slots will not be enough, you can have up to 15 additional SBus slots by using an optional expansion chassis.

**Ready for the future**

TriStation U2 systems are available as diskless workstations, or with a comprehensive range of factory installed mass storage options, which include not only two internal high-performance 3.5" disk drives (up to 2 x 9 GB capacity), but also the additional choice of an internal 32 speed CD-ROM or 4mm DAT tape drive.

Two serial interfaces (RS-232C/RS432), a Centronics-compatible High-Speed Port (4MBit/sec) and a 16bit CD-quality stereo audio port are completing the comprehensive list of built-in features. It's leading edge UPA architecture and computing performance make the TriStation U2 the optimum price /performance choice for Government and Financial applications; as well as Software Development, Electronics Design (EDA), Internetworking and Research & Development projects.

**TriServer U2 - Performance without Compromise**

The TriServer U2 Model E+ is a special variant of the TriStation U2 Model E+, featuring all the modularity, performance, and enhanced I/O options of the TriServer U2 series; but with no Creator graphics accelerator card. Its impressive specifications like the 100 MBit/sec Ethernet and the 20 MByte/sec Fast Wide SCSI-2 interface, as well as up to 2 GBytes of ECC memory makes the TriServer U2 a tempting mid-range desktop server with a remarkable price-performance ratio.

**We are here to help!**

Every TRITEC system is a 100% European product, designed and manufactured in accordance to ISO 9002 at the TRITEC factory in Mainz, Germany. TRITEC systems are covered by comprehensive warranty packages, including a warranty for 100% software compatibility to the corresponding original Sun™ system. Additional service and support packages such as European-wide on-site maintenance or hard- and software helpdesk assistance are available as options.

## UltraSPARC™ 2 CPU Architecture

All TRITEC TriStations U2 are based on the superscalar 64Bit UltraSPARC™ 2 V9 processor architecture with VIS (Visual Instruction Set) and 16K data & 16K instruction-cache. One or two CPU modules per system (one CPU per module).

## CPU modules

One or two CPU modules per system (one CPU per module).

TriStation U2	300	400
Clock Freq.	296 MHz	400 MHz
Level2 Cache	2 MB	2 MB

## Memory Management

MMU, with 64 I-TLB entries and 64 D-TLB entries, 8192 hardware supported contexts.

## Level2 Cache

2 MByte parity protected second level cache with 2.6 Gbytes/sec processor cache transfer bandwidth .

## Local UPA Bus Architecture

128 Bit wide local UPA bus for memory and I/O access with data transfer rates of 2.6 GByte/sec. (burst) and 1.2 GByte/sec (sustained). The actual transfer rate depends on CPUclock/2 or CPUclock/3 (100MHz or 83MHz).

## Extension Bus

Four 25MHz SBus Expansion-Slots (IEEE-1496), 32-bit or 64-bit data bus width master/slave, A:25 / D:64, 16 x 64Byte streaming buffers with data transfer rates of 120/100 MBytes (write/read).

## Onboard ECC Memory

32MB ECC memory, single bit correction/double bit detection, 576 bits wide, Total of 16 SIMM memory slots available 32-, 64, and 128-MB SIMM expansion.

512 MB maximum (with 32-MB SIMMs, in groups of four).

1 GB maximum (with 64-MB SIMMs, in groups of four).

2 GB maximum (with 128-MB SIMMs, in groups of four).

## Network

Ethernet/Fast Ethernet, twisted pair standard (10-BaseT or 100-BaseTx) or MII for external transceiver.

## I/O

20-MB/sec fast/wide SCSI-2, 16bit (synchronous).

Interface connector: SCSI-III, HD-68. Adapter to HD50, Centronics50 optional.

## Parallel Port

Centronics-compatible, bidirectional programmable printerport.

Interface Connector: DB25-female.

## Serial Ports

Two RS423/232C ports, supporting sync & async transfers.

Interface Connectors: One DB25-female, split cable incl.

## Keyboard & Mouse

A high-quality Sun™ type 5 compatible keyboard, available in many layout versions, and a mechanical 3-button mouse.

## Audio Interface

Twin channel (stereo) audio input/output, in CD-quality, 8-48KHz sampling rate, internal speaker.

Interface Types: Line in / Line out / Mic & Headphones.

Interface Connectors: 4 x 3.5mm stereo jacks.

## Graphics Interface

Creator Accelerated 24-bit 2-D/3-D graphics and imaging with 8-bit overlay plane, high-speed convolution, rotation, panning, zooming, color conversion, up to 1280 x 1024 at 76-Hz, stereo 960 x 680 at 112 Hz.

Creator3D High-performance 3-D graphics, 24-bit double buffering with 8-bit overlay plane, 28-bit Z-buffer, 4-bit stencil support, transparency, Gouraud shading, anti-aliasing, depth-cueing, up to 1280 x 1024 at 76 Hz, stereo 960 x 680 at 112 Hz.

TurboGX 8-bit 2-D/3-D wireframe, up to 1152 x 900 at 76 Hz.

All other TRITEC SBus graphic boards can be used as well.

## Internal Floppy Disk Drive (optional)

Internal 3.5" floppy disk drive with software auto-eject; MS-DOS/ IBM compatible.

## Internal CD-ROM Drive (optional)

All TriStations U2 can optionally be supplied with an internal 32 speed CD-ROM drive. The CD-ROM option is not available together with the DAT tape drive option.

## Internal 4mm DAT Tape Drive (optional)

A 4mm DAT tape drive 4 to 8 GB DDS2 is optionally available, if the internal CD-ROM option is not installed.

## Internal Disk Drive Options

All TriStations U2 are available diskless, or with one of the following internal high-performance standard Fast-Wide SCSI-2 disk drives: 1 x 4.0 GB / 1 x 9.0 GB / 2 x 9.0 GB.

All drives come in a cannister and are pluggable.

## Power Supply

'Universal World-wide' 110- 240VAC, 47-63Hz auto-ranging power supply, with 375W.

## Applicable Standards

All TriStations U2 meet or exceed the following international standards: FCC Class B, UL, TÜV EN 60950, CE.

## Physical Dimensions

450 mm (W) x 460 mm (D) x 137 mm (H), not including monitor or keyboard, weight typ. 21kg.

## Environmental Specifications

Operating: 0° C to 40° C (41° F to 104° F)  
20% to 80% relative humidity, non condensing,  
- 300 to 3000m.

Nonoperating: -40° C to 85° C (-40° F to 140° F)  
5% to 95% relative humidity, non condensing,  
max 12 000m.

Noise 5.4 /5.2 bels (operating/ idle).

## Monitor Options

43cm (17") 1152 x 900 or 1280 x 1024, 76 or 66 Hz refresh rate, multisync, Trinitron, 'Green', TCO specs.

51cm (20") 1152 x 900 or 1280 x 1024, 76 or 66 Hz refresh rate, multisync, Trinitron, 'Green', TCO specs.

## Software

Unless otherwise specified, all TriStations are supplied with SOLARIS™ Version 7 (or higher), incl. Open-Windows™ Version3, ONC™, NFS™, TCP/IP and Postscript™. All TriStations U2 are 100% binary compatible to any existing SPARCstation™ software on user level. It must, however, be noted that only software which has specifically been recompiled for the UltraSPARC™ processor will be able to use the full acceleration potential.

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