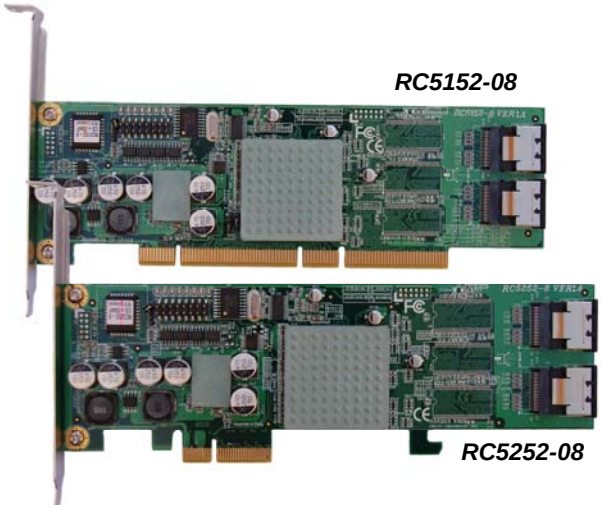
RAIDCore™ 5000 Series

High Performance Spanning PCIe and PCI-X SAS and SATA2 RAID Controllers

Ciprico's RAIDCore™ 5000 series of advanced host-RAID controllers and core logic software deliver a robust Enterprise class solution for Intel® compatible servers, workstations and personal computers utilizing Serial Attached SCSI (SAS) and Serial ATA (SATA1 and SATA2) hard disk drives.



Supporting up to 32 drives in a single disk array using controller spanning, the RC5000 series achieve over 1GB/s transfers to and from the drives. By taking advantage of today's high performance single or multi-core host CPUs and increased system memory bandwidths, the RC5000 series RAIDCore host software stack eliminates the need for a costly embedded processor or custom RAID chipset. The host CPU's spare cycles are used instead to calculate redundancy information and transfer drive data directly to and from system host memory without buffering on the card, reducing latency and avoiding intermediate hardware cache bottlenecks. Without the need for an onboard processor or cache, RAID controller battery backup modules are eliminated, along with the need for embedded processor cooling fans, further increasing reliability and enabling a new cost-performance level for direct attached RAID.

RAIDCore™ Host Software

- Highlights
  - RAID 0,1,5,10,50
  - Seamless controller spanning
  - N-way mirroring and distributed sparing
  - Online array creation and deletion
  - Multiple array types per drive
  - Bootable array support
  - Hot swap and drive roaming
  - Create arrays larger than 2 terabytes.
  - Programmable staggered drive spin-up
  - O/S and BIOS level management options
- Basic RAID (RC5x10-08)
  - RAID 0,1, 10, JBOD
- Advanced RAID (RC5152-08, RC5252-04/08)
  - RAID 0,1,1n,5,10,10n, 50, JBOD
  - N-way mirroring (RAID 1n, 10n) – Create multiple mirrors of the same hard drive or striped drives
  - Online capacity expansion - Add/expand capacity without interruption to I/O single or multiple cards
  - Online RAID-level migration - Change RAID levels without interrupting user I/O
  - Support for mixed capacity drives – Use 100% of all available capacity
  - Support for hidden arrays
- Controller spanning
  - Up to four RC5000/4000 cards or motherboard controllers per server appear in the management GUI as a single unified interface for large array support of up to 32 drives
- Mirror Splitting
  - Split a RAID mirror
  - Using n-way mirroring, utilize an additional mirror drive for full drive snapshot
- Three levels of hot sparing
  - Dedicated
  - Global
  - Distributed.

Applications

The RC5000 series adapters may be used in multi-user transaction oriented servers, web servers, desktop video editing systems, digital media server and video surveillance systems, supporting both large file streaming and classic multi-user IOPS class RAID usage models. Furthermore, for users of the earlier generation 4000 series cards or servers utilizing RAIDCore™ core logic motherboard RAID, it is possible to expand or transfer an existing array onto a 5000 series card without losing the RAID array configuration or data, a feature unique to the Ciprico family of RAIDCore™ products.

RAIDCore™ Controllers

- Low profile (-04/-08)
- PCI/PCI-X 32/64 bits 33/66/100/133 MHz (RC51xx)
- PCI Express x4 (RC52xx-04/08)
- Multi-channel Serial ATA (SATA 1 and 2) or Serial Attached SCSI (SAS) 300MB/s (3Gbps)
- SATA2 Native Command Queuing support
- Multi-lane mini-SAS/SATA Connectors (SFF8087 compatible)
- >1GBytes/s Performance, up to 32 drives spanned
- Operating Temp 0º to 55ºC
- RoHS Compliant
- 3 year warranty
- Max power consumption 8W (RC5252-08)

Spanning with Full Cross-Controller Redundancy

Using multiple controllers, the RAIDCore software stack allows drives to be grouped as part of the same disk array under a single virtual controller. Software based XOR information is calculated on the host processor, not on the RAID card itself. This allows the redundancy information to be written to any disk drive that is managed by the RAIDCore software suite, including motherboard core logic SATA or SAS I/O where supported.*

Use Your Drives for Data Not Parity

Want to build a 24 or 32 port system as a single RAID 5 array? Simply decide the combination of boards needed to match the required port number and use a single parity drive to span multiple controllers. For example, implement a 24 port system using a 16 and 8 port card, or a 32 port system using two 16 port cards. Create a RAID 0, 1, 5, 10 or 50 array as though it were attached to one large virtual controller. The RAIDCore spanning algorithm automatically binds them together as one virtual controller, making it the most versatile RAID controller in the market today.

* Currently supported on Broadcom HT1000 core logic chipsets

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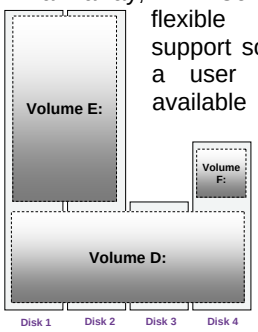
RC5000 ADVANCED FEATURES

Array Portability

Arrays created on any RAIDCore compatible system are transportable to another RAIDCore compatible array. For example if the array was created on a HT1000 compatible motherboard with no RAID adapter installed, it may be transferred to a Ciprico RC5000 series card on the same server and operating system without destroying or losing the array information or user data.

Advanced Array Partitioning

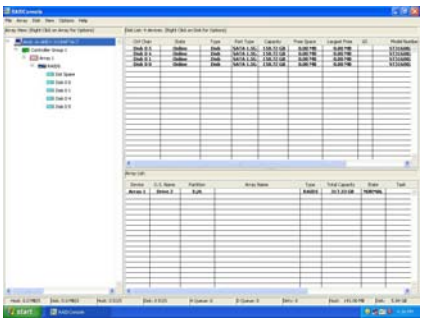
Unlike other RAID solutions that often require the same sized drives to be used in an array, RAIDCore offers a highly flexible mixed capacity support solution that allows a user to use all the available space to create multiple arrays utilizing different parts of the same physical disk for different arrays or purposes.



Comprehensive Management Utility

Voted one of the best RAID Utilities, the RAIDCore console application supports both local and remote management capabilities. Pop up alerts, system event logging, email notification of programmable alert levels enable users and administrators to be notified instantly there is a problem that needs attention. A low level BIOS utility also provides pre-boot and O/S independent configuration. For the most advanced users or system builders, a command line interface (CLI) is provided.

Detailed Features	RC5110-08	RC5152-08	RC5210-08	RC5252-04/08
PCI support	64-bit, 133MHz (PCI-X)	64-bit, 133MHz (PCI-X)	PCI Express 4 lane (10Gbps)	PCI Express 4 lane (10Gbps)
SAS/SATA 3G Ports	8 (-08)	8 (-08)	8 (-08)	4 (-04) 8 (-08)
RAID 0, 1, 10, JBOD	Yes	Yes	Yes	Yes
RAID 5, 50, 1n, 10n	No	Yes	No	Yes
SATA2 NCQ	Yes	Yes	Yes	Yes
SAS Expander Support	No	No	No	No
Online Capacity Expansion (OCE)	No	Yes	No	Yes
Online RAID Level Migration (ORLM)	No	Yes	No	Yes
Controller spanning	No	Yes	No	Yes
Mirror splitting	No	Yes	No	Yes
Selectable boot array	Yes	Yes	Yes	Yes
Hide/unhide array	Yes	Yes	Yes	Yes
Drive roaming	Yes	Yes	Yes	Yes
Cache support				
No cache	Yes	Yes	Yes	Yes
Read cache	Yes	Yes	Yes	Yes
Read with write back cache	Yes	Yes	Yes	Yes
Write back	Yes	Yes	Yes	Yes
Programmable staggered spin-up	Yes	Yes	Yes	Yes
Background array initialization	Yes	Yes	Yes	Yes
Create and delete without reboot	Yes	Yes	Yes	Yes
Background consistency check	Yes	Yes	Yes	Yes
Scheduled consistency checks	Yes	Yes	Yes	Yes
Task priority	Yes	Yes	Yes	Yes
Sparing support				
Dedicated	Yes	Yes	Yes	Yes
Global	Yes	Yes	Yes	Yes
Distributed	No	Yes	No	Yes
Advanced Array Partitioning	Yes	Yes	Yes	Yes
Touched region logging	Yes	Yes	Yes	Yes
E-mail event notification	Yes	Yes	Yes	Yes
NT event log integration	Yes	Yes	Yes	Yes
Instant RAID array creation	Yes	Yes	Yes	Yes
Hot swap support	Yes	Yes	Yes	Yes
BIOS support				
Create	Yes	Yes	Yes	Yes
Boot	Yes	Yes	Yes	Yes
INT13 control	Yes	Yes	Yes	Yes
Operating system support				
Windows® 32 and 64 bit	Yes	Yes	Yes	Yes
- XP, 2003, Vista				
Linux® 32 and 64 bit	Yes	Yes	Yes	Yes
- RHEL 4, 5				
- Fedora™ Core 5,6				
- SuSE® 9.3, 10.1, 10.2				
- SuSE Enterprise Server 10				
- SDK				



Warranty and Service

A 3 year manufacturer's warranty is provided, with web support via www.ciprico.com/raidcore or via your local distributor.

Sales Contact: sales@ciprico.com, Technical Support: support@ciprico.com

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