

Seagate OneStor™ Application Controller

Data Sheet

The Seagate OneStor™ Application Platform, AP-TL-1, is ideal for customers seeking a consolidated storage appliance with the highest levels of performance.

The AP-TL-1 was developed around the powerful Intel® Xeon® E5 CPU and features the current generation of this processor codenamed Ivy Bridge. At its highest capacity, the Intel® Xeon® E5-2648L V2 provides 10 physical cores and 20 threads of processing capability in a single AP-TL-1 controller. In addition, the AP-TL-1 offers 4 DDR3 VLP RDIMM slots for up to 64GB of memory and will provide even greater capacity as larger DIMMs proliferate in the market. The AP-TL-1 also has a Mellanox CX-3 I/O controller onboard that provides two manufacturing options: 2 ports of 10GbE SFP+ or 2 ports of 40GbE / InfiniBand operation, so that customers can exceed their current throughput requirements as well as be ready for the future. Two additional 1GbE ports of RJ45 are also on the controller for access to the AP-TL-1 management controller (BMC) as well as any application-specific customer uses. A PCIe slot is available should additional I/O formats be required. Finally, an MO-297 SSD is housed in the controller for the operating system and customer application and is available in several capacities.

Flexible Connectivity Options

The storage subsystem for AP-TL-1 is based on an LSI SAS controller operating at 6Gb/s and inserted into any Seagate OneStor™ storage enclosure. OneStor is available in 2U12, 2U24, 4U24 and 5U84 configurations. All have two available slots for either EBOD module(s) or one or two AP-TL-1 controllers. In the dual application controller configuration no single point of failure exists, offering complete redundancy for software and storage. Both controllers have access to all drives in the base enclosure and any connected expansion enclosures connected to the 6G SAS expansion port. High speed PCIe Gen 2 x16 connections between the dual AP-TL-1s can be used for cache coherency and heartbeat verification between redundant application instances to enable application fail-over. Single controller configurations offer application processing on all drives, but without the high-availability feature.

The ability to use EBODs and Application Controllers in different enclosures allows customers to choose the right storage quantity and capability for their application. With compatibility across controllers and in multiple chassis, customers can offer a range of storage and application configurations, yet retain the identical controller throughout, thus decreasing development time, spares costs and configuration complexity.

Unique patent pending battery backup options in the OneStor power/cooling modules can be used in conjunction with these internal storage options to backup critical on-board AP-TL-1 volatile memory when AC power failures occur.





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Unified Systems Management

The Unified Systems Management (USM) layer is bundled with the controller, managing all Seagate storage systems and consolidating server and storage enclosure management into a single interface. Based on IPMI and SES controls and monitoring, USM is common to all Seagate platforms. Customers can develop their solutions on Seagate hardware with the knowledge that it will be applicable to the wide array of controller and chassis combinations in the present and future.

Features

Intel® Xeon® E5 Processor support

Intel® Xeon® E5-2600 V2 CPUs: 2648L V2 (10 Core/20 Threads, 1.9GHz, 2.5GHz Turbo) and 2618L V2 (6 Core/12 Threads, 2.0GHz)

Expansive Memory Footprint

4 DDR3 1866MHz DIMM slots; 4, 8 and 16GB VLP RDIMMs currently available with greater capacity in the future.

High-Speed I/O for the Present and Future

Dual InfiniBand, 40GbE or 10GbE port options for network interface connections; plus dual 1GbE RJ45 connections are standard, all providing exceptionally fast I/O throughput.

Multiple Seagate OneStor™ Enclosure Options & Drive Support

Seagate AP-TL-1 fits into any of the OneStor family of enclosures: 2U 12 x 3.5" drives, 2U 24 x 2.5" drives, 4U 24 x 3.5" and 5U 84 x 3.5" drives, supporting both SAS and SATA drives.

High Available Configurations

The Seagate AP-TL-1 can operate in pairs and includes high-speed communications for two server module configurations, operating over a full duplex x16 PCIe Gen 2 connection. Single Controller configurations are also available. In addition, OneStor incorporates hardware based redundancy designed for failover operation.



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Specifications	
General Information	
Enclosures	OneStor AP-2212 (2U12: 3.5"), AP-2224 (2U24: 2.5"), AP-2424 (4U24: 3.5") and AP-2584 (5U84: 3.5")
Hard disk drives supported	Seagate OneStor enclosures support a number of 3.5" and 2.5" SAS, SAS and SATA drives after qualification through our extensive CERT process.
Solid storage devices	Seagate OneStor supports a number of 2.5" SSDs after passing our qualification process.
Processor	Intel Xeon® E5 Processor Series – including Intel Xeon 2648L V2 10-core processor (15M cache, 1.9GHz, 65W); Intel Xeon E5 2618L V2 6-core processor (8M cache, 2.0GHz, 45W) as standard options.
Memory capacity	Four DDR3 1866MHz DIMM slots for up to 64GB maximum per controller.
Enclosure storage and management controllers	LSI 2308 6G SAS controller for storage interface; Aspeed AST 2300 BMC for systems management; Seagate Unified System Enclosure management software included.
Standard client connectivity	Client connectivity via Mellanox CX-3 I/O controller offering two ports of InfiniBand / 40GbE QSFP operation or two ports of 10GbE SFP+ operation; additional two 10/100/1000 Mbps RJ-45 Ethernet ports (Intel-based)
Management	
Storage side management	Seagate Unified Systems Management (USM)
Server side management	IPMI V2.0, with remote KVM, host power management, crash screen capture, Remote Media, SSH, and Telnet support
Front Panel	
Buttons and LEDs	Seagate OneStor enclosure dependent, ID button, power LED, fault LED, IO LED
Input/Output	
PCI	One PCI Express (PCIe) Gen 3 x8 slot
USB	Two external USB 2.0 compatible connectors (rear)
Serial port	One RCA 3.5mm audio serial port
LAN ports	Two 10GbE or 40GbE / InfiniBand QSFP ports (10GbE converted to SFP+) Two 10/100/1000 Mbps RJ-45 (rear)
Expansion Storage	One Mini-SAS x4 6G connection for expansion shelves
Power	200W per controller
Safety Compliance	
Canada	UL60950 – CSA (60950 (UL and cUL)
Europe, CE Mark	EN60950 (complies with 73/23/EEC)
Germany	GS License
International	IEC60950 (CB Report and Certificate)
Nordic countries	EMKO-TSE (74-SEC) 207/94
Russia	GOST 50377-92
United States	UL– 60950 – CSA 60950 (UL and cUL)
Electromagnetic Compatibility (Class A) (EMC)	
Australia/New Zealand	AS/NZS 3548 (based on CISPR 22)
Canada	ICES-003
Korea	RRL, MIC 1997-41 and 1997-42 (on request)
Russia	GOST 29216-91 and 50628-95
Taiwan	CNS13438 (on request)
United States	FCC, Part 15

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