



≡ SeaChange® Broadcast Flash Memory Library FML200

The Green Machine - The Most Reliable Ingest and Play-to-Air Solution Featuring Flash Memory Server and Flexible MediaClient SD/HD Codecs



SeaChange International is the first Broadcast Server Manufacturer to deliver a practical flash memory-based ingest and Play-to-Air (PTA) server to dramatically improve reliability and drastically reduce operational costs for broadcasters. With flash memory and flexible SeaChange® MediaClient™ ingest and playout support, the SeaChange® FML200 (codename: *the Green Machine*) is designed to eliminate spinning hard disk drives from the most critical part of a broadcaster's on-air infrastructure. The FML200 is the ideal solution for media companies who want an environmentally friendly, ultra-reliable and yet economical ingest and playout solution.

BENEFITS

Most Reliable and Economical Solution – Combining flash memory with SeaChange's patented and widely deployed MediaCluster® technology, the FML200 delivers an ingest and PTA solution that exceeds 99.999% availability requirement, bringing a new level of reliability to the marketplace. Unlike all other on-air servers that require mirrored storage arrays, duplicate file copies, redundant server and complicated file synchronization schemes, the FML200 cluster is a cost-effective, single-copy and simple-to-manage on-air server solution. Scaling up to a nine-node cluster and supporting flexible numbers of MediaClient codec, the FML200 provides broadcasters with a wide range of options to configure their on-air operations.

Reduced Operational Costs – Broadcasters have been so far burdened with the high operational costs associated with disk failures, disk replacements and long disk rebuild times as well as high power consumption/thermal dissipation, large space requirements and noise. Compared to spinning hard disk drives, flash memory:

- has no moving parts
- is 100 times more reliable
- consumes 10 times less power

With the FML200, broadcasters can now avoid disk failure and the headaches associated with disk rebuilds. With less power to consume, less heat to dissipate and less noise, the FML200 will move broadcasters a step closer to the green operating environments that everyone desires.

High Channel Density and Small Form Factor – The FML200 comes in a compact 2RU package, capable of supporting up to 3 GigE IP accelerator cards. Each accelerator card can support large numbers of SD and HD MediaClient codec. Each FML200 server can host up to 24 flash memory drives. As the flash memory drives' capacity expands, the FML200 will further increase its storage density.

Full HD Now – The FML200 is fully compatible with SeaChange's widely deployed broadcast-quality MediaClient codec. With the latest MCL 6000 software-based flexible codec, broadcasters have the flexibility to start in SD and upgrade to HD software or simply go HD directly.

Fully Integrated with SeaChange's RAID² Disk-based Storage Servers (Near-line ML1G & Online BMLe/ex) – SeaChange FML200 includes smart automation-based file pre-fetching between other SeaChange servers (including nearline ML1G and online BMLex) and online FML200 servers, FTP while ingest and API control.

FEATURES

Each FML200 node includes an array of 24 flash memory disk drives, either 32GB or 64GB. Each node also includes up to three network accelerator cards with Gigabit Ethernet I/O to support CIFS and FTP access to each media file stored. The FML200 provides guaranteed I/O bandwidth via TCP/IP-compliant Gigabit Ethernet ports. This capability enables these products to satisfy real-time broadcast I/O requirements and to seamlessly connect to SeaChange MediaClient codecs and best-of-breed content preparation and asset browsing tools.

At full capacity, a six-node FML200 cluster puts 144 flash memory drives online for over 6.6TB of RAID5 protected storage. Silicon-based flash memory combined with SeaChange's MediaCluster architecture provides the highest levels of fault resilience for the FML200. When the FML200 nodes are combined into a MediaCluster, protection for stored assets permits continued operation even when an entire node is offline. This not only protects ongoing operations from system failures but also permits in-service maintenance, hot swapping of drives, system upgrades and the installation of additional base nodes.

USE CASES

Day of Air Server – provides high reliability right where you need it: on your PTA playout. Our massive Near-line Archive ML1G supplies the Green Machine continuously with new content.

Divide and Conquer – you can use several small Green Machines to support only a small number of outputs each. You would not need to put all your playout “eggs in one basket”.

Remote Playout Server - you can place a number of ‘Disaster Recovery’ channels at your uplink or transmitter site, forward the content via your satellite link or WAN to the transmit site, store day-of-air content in the Flash Memory Server. In the event you lose your playout facility due to fire, flood, power loss, etc., the Green Machines will be ready to play your critical programming to air out of the DR site.

Portable Record and Playout for Mobile Applications - due to its high reliability, it thrives in environments that you would not dare to install a disk-based storage device, such as in a moving truck or car, in a helicopter or airplane, or ship-board.



Non-Volatile Flash Memory Board

SPECIFICATIONS

SERVER SPECIFICATION

- 2U rack-mountable server
- 32GB or 64GB flash memory drives (64GB available Q3, 08)
- Up to 24x drives per server
- Up to 0.7TB usable storage per server with 32 GB flash memory
- Up to 70 hours of 15Mbps SD (~21Mbps video plus audio)
- Up to 23 hours of 50Mbps HD (~65Mbps video plus audio)
- Redundant power supply

CLUSTER SPECIFICATION

- Single server, 3 to 6 node clusters
- Up to 3.3TB usable storage with 32GB flash memory
- Up to 350 hours of 15Mbps SD (~21Mbps video plus audio)
- Up to 150 hours of 50Mbps HD (~65Mbps video plus audio)
- RAID5 fault resiliency, automatic load balancing and online expansion
- Dual redundant InfiniBand cluster switches

SOFTWARE AND CAPABILITIES

- Cluster Management GUI and command line interface
- System snapshot for upgrades, server replacements, and cluster expansions
- SNMP and alarms package
- Jumbo frame support for optimal bandwidth
- Supports SeaChange MediaClient for both SD and HD