FREDC Data Center

Our Mission

At Digital Intelligence, we combine the knowledge gained from years of providing digital forensics and eDiscovery services with a deep understanding of digital technology to build and deliver solutions that *Give Voice to Digital Evidence*™.

FREDC™

FORENSIC RECOVERY OF EVIDENCE DATA CENTER

FREDC - The Turnkey Forensic Data Center Solution

The Digital Intelligence® FREDC Data Center™ is a purpose-built, complete forensic server. With over 100 installations world-wide, FREDC is a proven, solution to departmental forensic acquisition, analysis, case management, and evidence storage needs.

Powerful, Purpose-built Forensic Network

Built to serve as an integrated, high-performing, turnkey forensic network, the FREDC Data Center stands apart from general purpose file servers. Each FREDC Server-RM™, is powered by an Intel® Xeon® W5-3535X 20-core processor. 128 GB of DDR5 4800 GHz RAM and a 100 TB internal RAID array module are standard. FREDC's high performance network infrastructure with a 10GbE switch support ultra-fast connections to forensic workstations, forensic imagers, printers, and other network devices. Six (6) x 10 GbE NIC ports balance network bandwidth and data load for great performance. Networked forensic workstations can access files for distributed processing or image directly to centralize storage. Each FREDC Server-RM runs a customized SUSE Linux Enterprise Server Software optimized for speed, efficiency, and reliability.

FREDC Server-RM

Built With Proven, Modular Digital Intelligence Components

In addition to the Server-RM, baseline rackmount modules include a fully configured FRED-RM™ Forensic Workstation (complete with UltraBay 4d™ and ventilated retractable drive cooler), a RAID-RM™ Server Attached Network Storage Module with twenty-four (24) 10 TB (upgradeable) 7200 rpm hard drives in HotSwap removable drive trays configured as a RAID6, intelligent power distribution, network switches, an Ultrium LTO-8 or LTO-9 robotic tape drive system (for backup and archival), 19" LCD rackmount display with full keyboard, and an in-rack UPS. Spare rack locations are available for additional FREDC modules (optional) and future expansion.

The FRED-RM rackmount forensic workstation ships pre-installed with Windows® 11 Professional 64-bit or openSUSE Linux, ready for use with most forensic software applications and imaging tools.

FREDC showing (from top): network switches, tape subsystem, Server-RM, RAID-RM, monitor and keyboard, KVM switch, FRED-RM™ and UPS

Fault Tolerant Storage In Excess of 10 Petabytes

FREDC™'s fault tolerant data storage capacity is huge. Configured with 10 TB hard drives, the base FREDC ships with a minimum of 340 TB of fault tolerant storage (100 TB in the Server-RM™ and 240 TB in the RAID-RM™). Each FREDC can support up to two (2) additional racks of RAID-RM modules, increasing total storage capacity to over 10 Petabytes.

Optional Modules Expand FREDC Capabilities

As forensic investigation needs change, functional modules can added, ensuring that FREDC remains a vital part of your forensic infrastructure for many years. Upgrades and options beyond the base FREDC system are extensive. The available optional modules are listed in the tech spec tables below.

Case Ready in Days

FREDC systems ship after having undergone extensive integration testing to ensure minimal problems during installation. A trained Digital Intelligence Systems Engineer performs the on-site installation of each FREDC. System installation, site testing, and customer training are generally completed within a two-day time frame. Customers are running cases on a FREDC data center within days of its arrival.

Application Software Resource Sharing & Management

A new FREDC feature enables software license dongle sharing. Dongles connected to FREDC's Server-RM USB ports are shared resources for workstations connected to the FREDC 10 GbE network. This FREDC exclusive feature supports a more cost efficient model for departmental software licensing and management.

Designed for Minimal System Admin and Support

Traditional network server support costs can be high. Not so with the FREDC. Each FREDC includes proprietary DI software built to minimize managing a properly running computer network. Workstation installation, system backup, system restoration, drive mapping, single user sign-on, and even bare-metal disaster recovery is made easier by this DI software. Each FREDC delivered to North American customers includes DI's SMS communication module for text-based event notification. Disk drive *SMART* information, RAID chassis temperature, and other information is monitored and reported via SMS text message.

Rigorously Tested and Optimized for Leading Software Packages

All FRED system configurations are exhaustively tested using leading forensic software packages. This methodology produces systems optimized for exceptional performance when conducting digital forensic examinations.

	FREDC™ - Forensic Recovery of Evidence Device Technical Specifications
FEATURE	Server-RM™ - Forensic File Server Module
Processors	Intel® Xeon® 658X 24-core, 48-thread CPU with 144 MB Smart Cache. Clock speed up to 4.9 GHz.
Memory	128 GB PC5-38400 DDR5 4800 MHz ECC memory; 256, 512, 768, and 1536 GB memory expansion options available
Chipset	Intel W890
Software	Debian Trixie Linux, Symantec® Ghost, Eltima USB Network Software
Hard Drive Storage	100 TB internal RAID array (80 TB RAID6, 10 x 10 TB drives) 1 x 500 GB 7200 RPM SATA disaster recovery drive (in drive bay enclosure) 1 x 2.5" / 3.5" SATA Drive Chassis with external access
Networking	Intel X710-T4L quad-port 10 GbE network adapter and Intel X710-AT2 dual-port 10 GbE controller (RJ45-copper)
Expansion and Connectors	1 x USB 3.2 Gen 2x2 Type-C, 1 x USB 3.2 Gen 2 Type-C, 4 x USB 3.2 Gen 2, 10 x USB 3.1 Gen 1, 4 x USB 2.0
Storage Controllers	2 x M.2 slots (Key M), PCIe 5.0 x4 mode (2242/2260/2280/22110); 1 x M.2 slot (Key M), PCIe 4.0 x4 mode (2242/2260/2280); 2 x slimSAS slots; 8 x SATA 6 Gb/s ports
Power	1200 Watt modular power supply
Chassis	4U rackmount

FEATURE	FRED-RM™ Workstation - Forensic Workstation Module
Processors	Intel Core™ Ultra 9 285K 24-core, 24-thread CPU with 36 MB Smart Cache. Clock speed up to 5.7 GHz. Upgrades available, contact us for more information
Memory	64 GB PC5-41600 DDR5 5200 MHz ECC memory; Expansion options available
Chipset	Intel Z890
Software	Microsoft Windows® 11 Professional 64-bit, openSUSE Tumbleweed 64-bit, Symantec® Ghost
Graphics	NVIDIA® GeForce® RTX 3050 8 GB 128-bit GDDR6, 2560 CUDA® cores. GPU upgrades available.
Hard Drive Storage	Up to seven (7) storage drives in FRED-RM modules: Operating System - 1 TB M.2 NVMe SSD User defined storage - 1 TB M.2 NVMe SSD User defined storage - 4 TB 7200 RPM SATA III hard drive Extra drive slots: One (1) SATA-connected, one (1) USB 3.2-connected SATA HotSwap, two (2) M.2 NVMe PCIe SSD Many drive capacities/types are available
Drive Bays	2 x SATA, shock-mounted, removable trays 1 x HotSwap USB 3.2-connected SATA, shock-mounted, removable tray
Forensic Imaging / Write Blocking	DI UltraBay 4d™ forensic bridge - write blocks SATA, SAS, USB 3.0/2.0/1.1, IDE, FireWire, and PCIe SSD storage devices; Touchscreen user interface supports local, on-screen access of device information including: • Storage media details • LUN selection • Management of HDD protected regions • File system partitions (independent of the FRED OS) Supports simultaneous and sequential forensic imaging of multiple storage devices; Supports HotSwap device connection; Available exclusively from DI on FRED systems
Hard Drive Cooler Shelf	DI exclusive extendable / extractable imaging work shelf with integrated ventilation (for drive cooling)
Media Card Reader	DI Forensic Media Card Reader - user-selectable read/write or read only access
Networking	1 x Marvell® AQtion 10 GbE (RJ45); 1 x Intel 2.5 GbE (RJ45); Wi-Fi 7 (802.11be) 2.4/5/6 GHz bands, Bluetooth® v5.4
Expansion and Connectors	2 Thunderbolt™ 5 (80/120 Gbps) USB Type-C ports - rear access 1 USB4 / Thunderbolt (40 Gbps) Type-C port - rear access 3 USB 3.2 Gen 2 (10 Gbps) Type-C ports - 2 front access / 1 rear access 9 USB 3.2 Gen 2 (10 Gbps) Type-A ports - 7 front access / 1 rear access 3 USB 2.0 Type-A ports - 2 front access / 1 rear access 1 write blocked SATA port - front access, read/write switchable through UltraBay 4d 1 write blocked SATA or SAS port - front access, read/write switchable through UltraBay 4d 1 write blocked PCIe port - front access, read/write switchable through UltraBay 4d 1 write blocked USB 3.0/2.0/1.1 port - front access, read/write switchable through UltraBay 4d 1 write blocked IDE port - front access, read/write switchable through UltraBay 4d 1 write blocked FireWire 1394 A/B (400/800 MB/s) port - front access, read/write switchable through UltraBay 4d
Storage Controllers	1 x M.2 slot (Key M), PCIe 5.0 x4 mode (2242/2260/2280/22110); 3 x M.2 slots (Key M), PCIe 4.0 x4 mode (2242/2260/2280); 4 x SATA 6 Gb/s ports
Audio	Realtek® 7.1 surround sound high definition audio CODEC
Power	1200 Watt modular power supply
Chassis	4U rackmount

FEATURE	Network Module
10 GbE Network	Intel quad port 10 GbE (copper) network switch 1 fully managed, line-rate 10G copper 'Base-T' rackmount switch. Supports up to 48 10 GBase-T (RJ45) and 4 SFP+ ports
Cat 6A Patch Panel	Two (2) - 24 port rackmount Cat 6A patch panel for a total of up to 48 patch panel ports
Cat 6A Cables	Two (2) - 25 x 1 ft. for a total of 50 cables
Enclosure	3U rackmount

	FREDC™ - Forensic Recovery of Evidence Device Technical Specifications *(continued)*
FEATURE	RAID-RM™ - Server Attached Network Storage Module
Default FREDC Storage	Master Unit - 240TB RAID array module (220 TB RAID6) 24 bay, 4U rackmount RAID enclosure (multilane SAS attached) 24 x 10 TB, 7200 RPM hard drives in HotSwap removable drive trays Optional drive capacity upgrades available
Optional Storage	Additional RAID-RM storage modules available, capacities as shown above
Power	Dual redundant 460 Watt power supply
Chassis	4U rackmount

FEATURE	System Backup - LTO-8 Ultrium Robotic Tape Library Module
Tape Changer	LTO-8 Ultrium Drive, 24 slot library, SAS interface; LTO-9 upgrade option available
Media Set	LTO-8 media set 11 data media cartridges (12 TB/30 TB capacity) plus one cleaning tape cartridge
Software	NetVault
Enclosure	2U rackmount

FEATURE	Display and Access Module
Monitor / Keyboard	19 " LCD rackmount display with integrated keyboard/track pad
KVM	8 port KVM switch with IP remote access
Cables	KVM cable set - 2 USB, 1 P/S2 cables
Enclosure	1U rackmount

FEATURE	Electrical Power
UPS - 120V	3000 VA rackmount Uninterruptable Power Supply, 120V rackmount power strip. Requires 30 amp dedicated circuit with NEMA L5-30R receptacle at install location
PDU - 120v	12 outlet, 15 amp, 30 amp dedicated circuit with NEMA L5-30R receptacle at install location
Optional UPS - 230V	Optional 3000 VA rackmount Uninterruptable Power Supply, 230V Requires 230 volt, 16 amp dedicated circuit with one of the following receptacles at the install location: IEC-320 C20, Schuko CEE 7 / EU1-16P, or British BS1363A
Optional PDU - 230V	10 outlet, 16 amp, 230V rackmount power strip

FEATURE	42U Rackmount Enclosure Module
Rack	Rackmount enclosure with doors and ventilation fans - 85" High x 23.5" Wide x 36" Deep

Utility	FREDC System Management Utilities
FCCInstall	Prepare stock workstation for use with the FREDC Data Center
DIWIMS	Create and maintain functional images of connected workstations
NetLogon	Forensic workstation drive mapping and time sync
DIDRE	"Bare metal" recovery of the server to a known good state
SMS Comm	Notifies designated parties of a system warning or critical event via SMS text

Module	Optional Rackmount Modules Available for FREDC Forensic Data Center Systems
FREDC RAID-RM Storage	240 TB (raw), 220 TB RAID6 storage module. Rackmount 4U configuration. Drive upgrades available
FREDC DB Server	Database Server for FREDC. Rackmount 4U configuration
FREDC VM Server	Virtual Machine Server. Rackmount 4U configuration
Decryption Appliance	Multi-GPU based accelerator for password recovery. Includes 4, 6 or 8 graphics acceleration cards. 4U rackmount with integrated liquid cooling.
FRED-RM™ Workstation	FRED-RM Forensic Workstation module (see above). Rackmount 4U configuration.

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