Tracewell T-FX2s

A high-performance converged platform engineered to easily integrate specialty PCIe cards.

Businesses, OEMs and government agencies are under pressure to adapt to a new era in computing as traditional rack-and-stack installations give way to the next generation of converged platforms. With its integrated design – featuring servers, networking and storage in one flexible, easy-to-manage system – Dell's PowerEdge FX has been hailed by Forrester Research as "a bold new computing architecture" based on its ability to deliver a powerful, flexible, cost-effective converged computing platform.

The Tracewell Systems T-FX2s is part of a family of products that extend the capability of Dell's FX architecture by making it possible to deploy converged computing "beyond the back office," in settings where standard computing systems are not engineered to operate – places with significant space constraints or unique computing challenges, such as in the air, at sea or on the ground, in a variety of fixed and mobile installations.

The hallmark of the T-FX2s is the ability to easily integrate specialty PCIe cards (such as GPU, FPGA, zero client and VDI), creating a powerful, flexible and open converged computing platform that enables a wide range of specialty workloads, applications and third-party technologies.

Engineered from the ground up in partnership with Dell, the T-FX2s is fully interoperable with Dell's FX architecture and can easily integrate the latest compute, networking and storage technologies as they become available. The T-FX2 family of products features a long-term product roadmap based on Dell's best-of-breed technology portfolio, and the platforms can be easily adapted or customized to meet a variety of field program requirements – because Tracewell Systems has a 40-year history of successfully engineering high-performance computing platforms for businesses and government agencies.

T-FX2s AT A GLANCE

Engineered for users that need to integrate specialty PCIe cards (GPU, I/O, FPGA), storage and other third-party technologies into a high-performance, converged platform for "beyond the back office" computing needs.

Accepts full-size, high-power Gen 3 PCIe cards in a pluggable module with up to 315W per PCIe slot, including 8 full-size, single-width or 7 full-size, double-width or 4 full-size, double-width cards (x16).

Features enhanced power capabilities to support high-performance PCIe I/O and low-line power operation.

Short-depth form factor (23.7 inches from front to rear) optimized for "beyond the back office" and space-constrained environments.

Based on and entirely interoperable with the Dell FX architecture – featuring identical compute, networking and storage nodes.

Can be easily adapted to meet specific field mission and program requirements.

Increased cooling. Independant cooling provided to PCIe slots.

Supports the Dell PowerEdge FD332 storage sled.

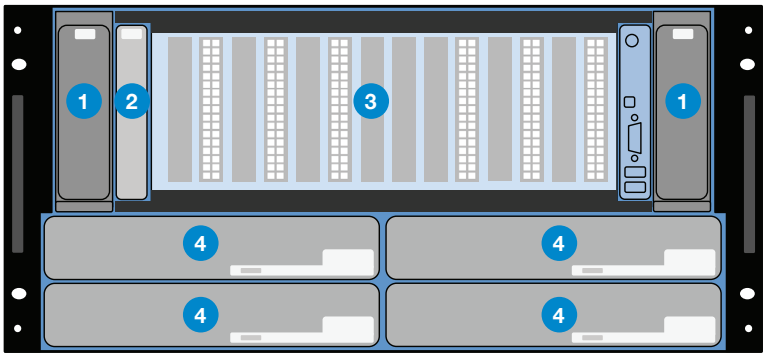
I/O modules and CMC are accessible from the front (pluggable modules).

Complies with secure supply chain and TAA requirements.

The Tracewell T-FX2s Specifications

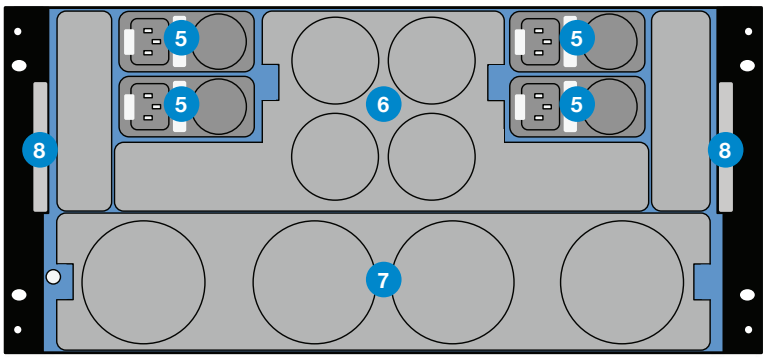
USE CASE	For demanding environments with size, weight and power constraints, such as aircraft and shipboard installations, transit case systems and forward-deployed datacenter environments.
PROCESSOR TYPE	Intel® Xeon® E5-2600 v3 and E5-4600 v3 family of processors, each with 4 to 18 cores. Number of processors: half-width (HW) and quarter-width (QW), 1 or 2; full-width (FW), up to 4.
CHASSIS CONSTRUCTION	Bonded aluminum low-mass chassis for rigidity with minimum weight.
MEMORY ARCHITECTURE	2133MT/s, DDR4, LRDIMM and RDIMM. Number of Sockets: HW, 24; QW, 6; FW, 48. Maximum RAM: HW, 768GB; QW, 192GB; FW, 1536GB.
RAID CONTROLLER	Hardware RAID, Levels 0, 1, 5, 10.
STORAGE	**Processing Sleds:** HW, up to two 2.5" or eight 1.8" drives; QW, up to two 1.8" drives; FW, up to sixteen 1.8" drives. Hot-swappable, SAS/SATA/PCIe, SSD/HDD. Internal SD vFlash site. Optional internal USB and dual SD sites (hypervisor). **Storage Sleds:** HW, up to sixteen 2.5” drives. Hot-swappable, SAS/SATA, SSD/HDD.
VIDEO	G200 (integrated with iDRAC8). 16MB video memory shared with iDRAC8 application memory. High-performance PCIe video is also supported.
SLED SLOTS	Includes 2U sled bay, scalable to include up to 2 FW, 4 HW, or 8 QW processing sleds, or up to 2 HW storage sleds.
I/O MODULES	Ethernet: supports up to 2 I/O aggregator modules. Modules are available in pass-through and switching configurations.
PCIe SLOTS	Supports PCIe Gen 3 full-height, full-length, high-performance cards. Up to 8 single-width x8, 7 double-width x8, or 4 double-width x16 full-size cards. Ideal for high-performance I/O utilization (i.e. GPU, FPGA, SSD). Extended power and cooling capacity to handle up to 315W per slot. Front-pluggable PCIe module is highly adaptable for specialized applications.
CHASSIS MANAGEMENT CONTROLLER	Single, dual-port chassis management module. Two dedicated 10/100/1000Mb RJ45 ports, one for external management network, one for daisy chaining or NIC failover; Serial 9-pin, DTE, 16550 compatible.
FRONT ACCESSIBLE I/O	One 4-pin USB connector for keyboard and mouse support. One additional USB 2.0 connector. One 15-pin VGA video connector. KVM selector switch.
POWER SUPPLY	Up to 4 power supplies supported. Available in 1600W or 2000W output (per PS), N+1 capable. High-line operation up to 5500W with or without N+1 redundancy. Low-line operation up to 4000W, or 3000W with N+1 redundancy. Input voltage: 90–264 VAC. Maximum inrush current: 25 A (per PS).
COOLING	Two rear removable fan modules with high-pressure fans. Independent cooling to PCIe slots.
ENVIRONMENTAL	Normal operating temp: 10°C to 35°C (50°F to 95°F). Expanded operating temp: -5°C to 45°C (23°F to 113°F) with some restrictions. Storage temp: -40°C to 65°C (-40°F to 149°F). EMC: enterprise class FCC emissions. Optional EMI shielding and D38999 connectors for MIL-STD-461 (adds 1U).
RACK INSTALLATION & OPTIONS	19" rack mount per EIA specification; front and rear mounting points to allow hard mounting into racks; rear pin option to allow blind mating into racks; additional mounting locations for sled lock bars; front handles. Optional: rack mount slides; removable front guard with particle filter; line cord retainer kit.
	Above specifications are derived from the standard Dell PowerEdge FX2 product.

The Tracewell T-FX2s Configuration



FRONT VIEW

1 . I/O module
2 . CMC slot
3 . Removable PCIe tray
4 . Half width slot (shown)



REAR VIEW

5 . PS module
6 . PCIe fan module
7 . System fan module
8 . Sliding rails

ACCOMODATES ALL SLED TYPES

9 . FC430
10 . FC630
11 . FD332
12 . FC830

STANDARD SLOT CONFIGURATIONS

Quarter-width slots (up to 8)
FC430 high-density dual-socket sleds
Half-width slots (up to 4)
FC630 dual-socket server sleds
FC332 DAS storage sleds
Full-width slots (up to 2)
FC830 high-capacity server sleds
Mixed-width slots
4 quarter-width and 2 half-width or 1 full-width
2 half-width and 1 full-width

REMOVABLE PCIe TRAY SUPPORTS

PCIe Gen 3 x8 (Option 1)
Up to 8 full-size, single-width cards
Up to 7 full-size, double-width cards
6 double-width and 2 single-width cards
PCIe Gen 3 x16 (Option 2) — FC630/FC830 only
Up to 4 full-size, triple-width cards
Numerous PCIe mapping options to sleds
PCIe power and cooling for up to 315W/slot
All PCIe card form factors
Adaptable for various top of card interfaces

I/O SLOTS SUPPORT AGGREGATORS OR PASS-THRU MODULES

Type 100Mb/1/10GbE, FCoE options

CHASSIS MANAGEMENT MODULE (CMM)

Advanced management and remote access

UP TO 4 POWER SUPPLIES

1600W or 2000W options
Redundant or current share
Up to 3000W low line with redundancy

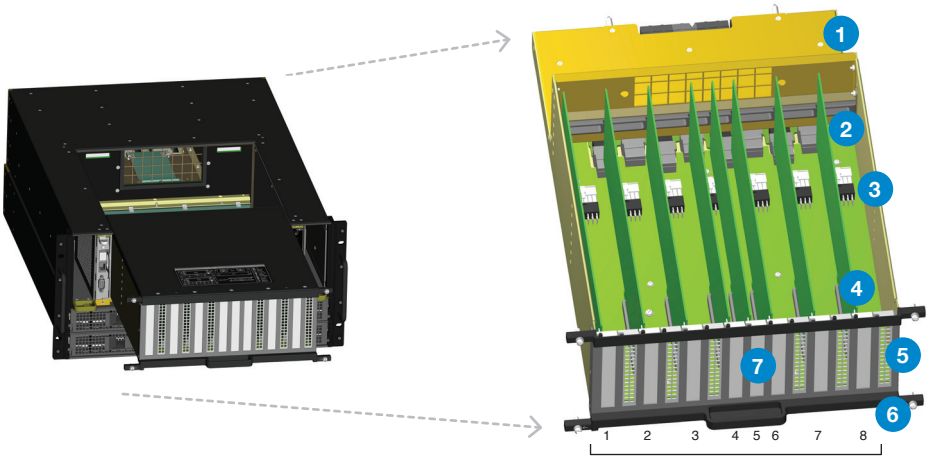
TWO REMOVABLE FAN MODULES

Redundant high-capacity dual-motor fans
Upper module dedicatd for PCIe cooling

DIMENSIONS

17.5"W x 8.7"H (5U) x 23.7"D

Tracewell Removable PCIe Tray



PCIe TRAY: INTERNAL

1. Up to 315W/slot power and cooling
2. Top access to cards without removing tray
3. Auxiliary power connectors
4. Up to 8 PCIe x8 slots or 4 PCIe x16 (FC630/FC830 only)
5. Single pluggable tray for configuration
6. Customizable for unique applications
7. Slot numbering (PCIe x8)

Tracewell's unique removable PCIe tray enables businesses, federal agencies and OEMs to add a wide-range of functionality to the T-FX2s chassis, including:

Non-standard card heights. Can be added to the T-FX2s with no impact on the main chassis or system configuration.

Added storage and specialty hardware. The T-FX2s features a powered and cooled tray environment that is ideal for added storage capacity as well as additional third-party hardware.

Flexible design. To facilitate complicated mission or program requirements in the field, users have two options for accessing the critical hardware, storage and other third-party technology integrated into the removable PCIe tray: They can simply open the sled's top door for access or they can pull the sled entirely out of the T-FX2 chassis and insert a replacement sled.

ABOUT TRACEWELL SYSTEMS

Tracewell's T-FX family of products, based on Dell PowerEdge FX, represents the company's fourth generation blade-based systems engineered to deliver high-performance computing in a form factor designed for forward deployment in space-constrained environments, such as in the air, at sea or on land, in unique fixed or mobile installations. The company has a 40-year history of enabling the nation's largest military and commercial organizations to deliver powerful and reliable computing solutions in environments where size, weight, power and other constraints present challenges that cannot be met by standard computing systems. Tracewell Systems has become recognized by the top names in the defense and technology sectors for their commitment to Trusted Innovation – a process where the company solves previously impossible, sensitive, mission-critical platform challenges through custom solution design, engineering and manufacturing, all under one roof. For more information, visit tracewell.com.