

## PacStar Modular Data Center (MDC)



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**PacStar Modular Data Center (MDC) is a COTS-based, modular, tactical and expeditionary, rugged data center capable of hosting cloud/storage, AI, and analytics applications.** PacStar MDC uses proven small form factor modules for compute, storage and networking functions with industry leading reduction in Size, Weight and Power (SWaP). PacStar MDC can be deployed dismounted, in FOBs, command posts, ground vehicles and aircraft, as well as in upper echelons – for military, intelligence, law enforcement, and homeland and security use.

PacStar MDC provides converged compute/storage/networking at the edge of the network, supporting a diverse array of use cases in disconnected, intermittent and limited environments including:

- Hosting situational awareness, mission command and C2 applications
- Supporting SIGINT, HUMINT and IMINT data gathering and analytics workloads
- Supporting emerging IoT and sensor fusion-based applications
- Unifying access to data and applications from enterprise to the tactical edge
- Hosting compute and storage-intensive networking, cybersecurity and VDI solutions

PacStar MDC uses PacStar 400-Series modular platform designed to maximize capabilities with the smallest SWaP possible – enabling high amounts of storage at the edge without sacrificing mobility. The modular nature of PacStar MDC enables programs to optimize the CPU, RAM, and storage capabilities of the fielded solution, depending on the specific use case. PacStar MDC configurations can include eight servers, five servers and one hyper-convergence module, or two servers and two hyper-convergence modules. Additional customization is possible with other PacStar 400-Series modules.

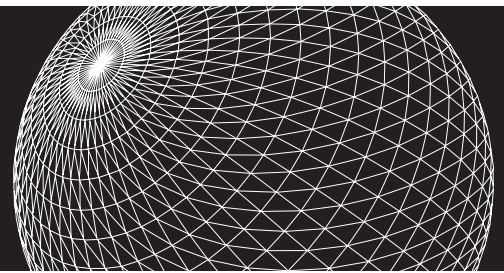
PacStar MDC core components have been tested with a vast array of applications and virtualized network functions and are ideally suited to provide a platform for any cloud infrastructure, management, or storage software compatible with Intel-based processors. For example, PacStar MDC can run infrastructure software such as Nutanix, VMware vSAN, NetApp ONTAP edge, Riverbed SteelFusion, Cisco NFVIS, OpenNAS, and more.

PacStar's 400-Series platform is widely deployed in the US Army and US Marine Corps, having been selected and deployed by the US Army PM TN T2C2, SFAB, and ESB-E programs and the US Marines NOTM program.

## Key Features

- **High density compute, storage and networking** infrastructure capable of handling large loads with industry-leading SWaP reduction
- **Modular system can be optimized for program needs**, maximizing number of CPU cores or size of solid state storage, depending on program needs
- **Based on Intel processors** and compatible with wide variety of applications, can meet the needs of a vast array of C4ISR use cases including data gathering, analytics/AI, and situational awareness
- **Supports most popular storage/replication and hyperconvergence infrastructure software** including Nutanix, VMware vSAN, NetApp ONTAP edge, Riverbed SteelFusion, Cisco NFVIS, OpenNAS
- **Expandable/modular system** may be customized with added networking or alternative component technologies
- **Based on rugged, MIL-STD tested, PacStar 400-Series modules and packages** ideal for fly-away, command post, ground vehicle and aircraft deployment
- **Managed by PacStar IQ-Core<sup>®</sup> Network Communications Manager**, providing network and server management capabilities for the tactical communicator

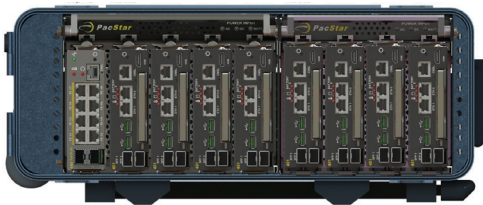




## SOLUTION CONTENTS

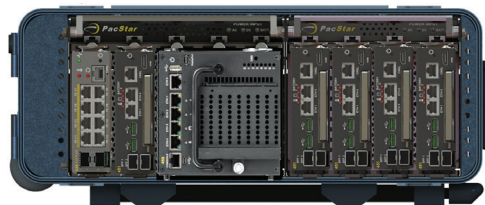
PacStar MDC core components include: PacStar 451 Xeon D-based servers with a single SSD; PacStar 455 Hyper Convergence Modules with up to 8 RAID-protected SSDs, providing up to 64 TB of storage; and PacStar 444 GigE switches. These components are typically mounted in the user's choice of PacStar Smart Chassis with UPS, or a 19" rack mount with a PacStar Mini-Transit Case, or a Vehicle Rugged Rack.

PacStar MDC is available in three standard variants, but may also be customized to meet specific program requirements.



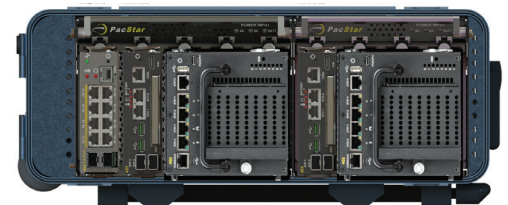
### Variant 1 - Maximum CPU and RAM

- (8) PacStar 451 Xeon D 1539 8-core CPU
- (1) PacStar 444 GigE Switch
- Aggregate Performance: 64 CPU cores, 512 GB RAM, 64 TB SSD storage



### Variant 2 - Balanced CPU and RAM with RAID Storage

- (4) PacStar 451 Xeon D 1539 8-core CPU
- (1) PacStar 451 Xeon D 1559 12-core CPU
- (1) PacStar 455 Xeon E3 4-Core CPU with 64 TB Storage
- (1) PacStar 444 GigE Switch
- Aggregate Performance: 48 CPU cores, 352 GB RAM, 104 TB SSD storage



### Variant 3 - Maximum Storage

- (2) PacStar 451 Xeon D 1559 12-core CPU
- (2) PacStar 455 Xeon E3 4-Core CPU with 64 TB Storage
- (1) PacStar 444 GigE Switch
- Aggregate Performance: 32 CPU cores, 192 GB RAM, 144 TB SSD storage

## PACSTAR 400-SERIES MODULES

### Key Features

- Dimensions: 5.3" x 7.1" x 1.6" (Each PacStar 455 is 3x wide)
- Weight: ~2.5 lbs to 6 lbs. (Each, depending on model)
- Snap-together connectors provide DC pass-through for powering additional PacStar 400-Series products
- Operational temperature -20C to 70C
- Extensively tested: MIL-STD 810G, MIL-STD-461 and MIL-STD-704D
- Battery snap-together connectors for 1 or 2 AN/PRC-148 radio batteries; hot swappable with 5+ hours runtime per battery
- Wide range DC input, 10-36 V DC
- World-wide AC power input (with adapter cable)
- PacStar 444 PoE power output: Up to XX watts available PoE on AC or DC input
- Power draw: Nominal 20 to 90 watts per module, depending on module type



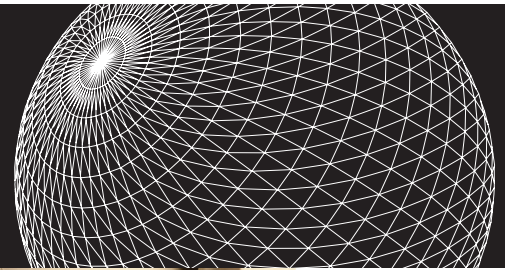
*PacStar 455 Tactical  
Hyper-convergence Module*



*PacStar 451 XEON-D  
Based Server*



*PacStar 444 Small GigE Switch  
(Cisco ESS 3300)*



## SYSTEM PACKAGING

### Physical Specifications

Included in a PacStar Mini-Transit Case, with a payload of up to (9) modules, provides a transportable infrastructure for housing and operating PacStar 400-series Smart Chassis and modules.

- Custom designed carbon fiber transit case with wheels and handle (9" x 21" x 14")
- Meets FAA maximum carry-on bag size restrictions
- Holds multiple Smart Chassis with a maximum (9) module payload - e.g. (1) 4-slot and (1) 5-slot Smart Chassis
- Removable lids for operation of equipment in the transit case
- Smart Chassis are user removable and capable of operating outside the transit case; enabling physical separation as required for classified enclaves
- Overall system weight ~65 lbs.

PacStar MDC is also available in PacStar Rack Mount Frame and other configurations ideal for ground vehicle and airframe mounted use cases including networking on the move, and networking en route.

### System Power Specifications

- Total power draw, approximately 385 to 405 watts (depending on variant)
- Includes an integrated power system
- World-wide AC input, 47 - 63 Hz, 85 V - 264 V
- Wide range DC input, 10 - 36 V DC
- Includes an integrated UPS based on the DoD standard 2590 Li-Ion rechargeable battery
- 200 watt-hours rated
- Automatically auto-senses and switches to battery if prime power is interrupted
- User accessible battery compartment
- LED indicators for battery status



PacStar systems including this product may be covered by one or more of the following US patents: #8,654,749, #7,817,589, #8,270,325, #9,160,619, #9,225,102. Additional patent(s) pending. See [www.pacstar.com/patents](http://www.pacstar.com/patents) for details.