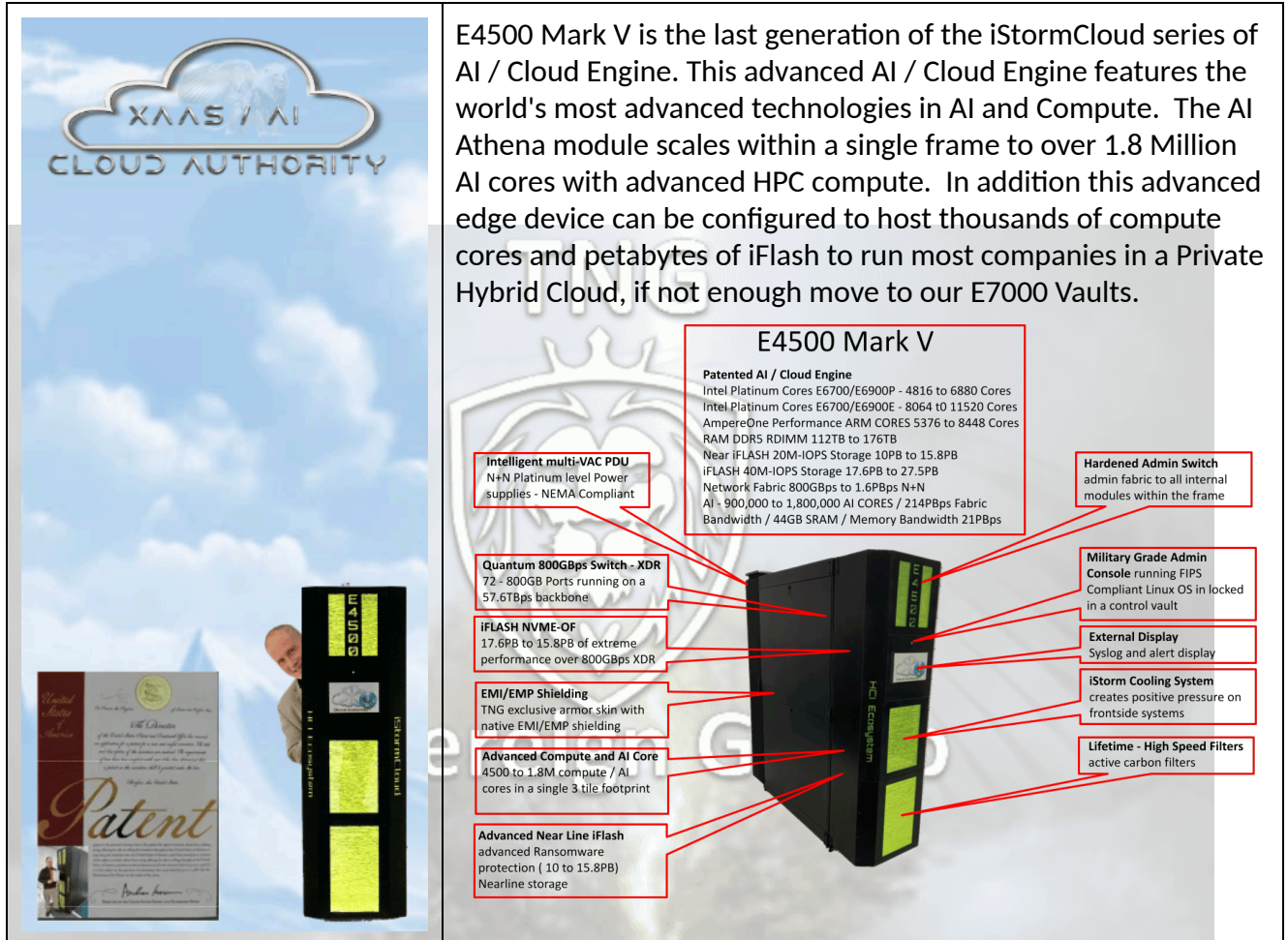




E4500 Mark V - Hardware 101
(Highly Confidential)

E4500 Mark V "iStormCloud" AI / CLOUD Engine



E4500 Mark V

Patented AI / Cloud Engine
 Intel Platinum Cores E6700/E6900P - 4816 to 6880 Cores
 Intel Platinum Cores E6700/E6900E - 8064 to 11520 Cores
 AmpereOne Performance ARM CORES 5376 to 8448 Cores
 RAM DDR5 RDIMM 112TB to 176TB
 Near iFLASH 20M-IOPS Storage 10PB to 15.8PB
 iFLASH 40M-IOPS Storage 17.6PB to 27.5PB
 Network Fabric 800GBps to 1.6PBps N+N
 AI - 900,000 to 1,800,000 AI CORES / 214PBps Fabric
 Bandwidth / 44GB SRAM / Memory Bandwidth 21PBps

Intelligent multi-VAC PDU
 N+N Platinum level Power supplies - NEMA Compliant

Quantum 800GBps Switch - XDR
 72 - 800GB Ports running on a 57.6TBps backbone

iFLASH NVME-OF
 17.6PB to 15.8PB of extreme performance over 800GBps XDR

EMI/EMP Shielding
 TNG exclusive armor skin with native EMI/EMP shielding

Advanced Compute and AI Core
 4500 to 1.8M compute / AI cores in a single 3 tile footprint

Advanced Near Line iFlash
 advanced Ransomware protection (10 to 15.8PB)
 Nearline storage

Hardened Admin Switch
 admin fabric to all internal modules within the frame

Military Grade Admin Console
 running FIPS Compliant Linux OS in locked in a control vault

External Display
 Syslog and alert display

iStorm Cooling System
 creates positive pressure on frontside systems

Lifetime - High Speed Filters
 active carbon filters

Cloud Authority
 XaaS / AI
 CLOUD AUTHORITY

Patent

Power and hardware specifications

Power requirements: Max consumption 40K Watts **Power Connections:** 2 - NEMA L5-20 compliant 115 VAC receptacles 4 - NEMA L6-30 compliant 200 VAC receptacles **Dimensions:** Width x Height x Depth 24" x 81.5" x 72" **Weight :** fully loaded: 4,972lbs **Operating temperature:** 10°C to 55°C **Operating humidity:** 8-80% (non-condensing) **Non-operating temperature:** -40°C to 65°C **Non-operating humidity:** 20%-95% (non-condensing) **Intel Platinum 6880 Cores (Primary).** DDR5 @ 5600 MT/s (1 DPC) 192 TB RAM. Olympus **Photonics** AI/GPU Ultra-high performance out-of-order super-scalar processing architecture. Massive on-chip activation and weight storage enable state-of-the-art neural network execution without leaving the processor. **ARM AmpereOne** 96 to 192 Ampere 64-bit Arm® ISA compliant cores, Armv8.6+2x128-bit SIMD units per core. Private Cache L2: 2MB per core, L1: 16KB Instruction Cache per core, 64KB Data Cache per core. DDR5 RAS features Up to 4 TB addressable capacity **System Features-** Interrupt Virtualization (GICv3) -IO Virtualization (SMMUv3, SRIOV) -Enterprise RAS: SECDED ECC protected memory throughout -Coherent Mesh Interconnect with distributed snoop filtering **Memory** 8 Channels 72-bit DDR4-3200 with ECC -Up to 16 DIMMs (2DPC) and 4 TB total memory **Connectivity** 128 Lanes PCIe Gen4 (optional 64 lane CCIX for multi-socket support) Other Specifications Instruction Set Compatibility: Armv8.2+, SBSA 4- Independent System and Power Controllers (SMpro and PMpro) iFlash storage running at 40+ Million IOPS Performance READ (TYP): 71µs - WRITE (TYP): 15µs • Reliability - MTTF: 2 million device, static and dynamic wear leveling - Uncorrectable bit error rate (UBER): <1 sector per 1017 bits read - End-to-end data protection - Full power-loss protection NVME-OF Storage on advance Fabric InfiniBand switch provides 144 ports of 800Gb/s connectivity per port. It includes hardware-based In-Network Computing with SHARP v4, adaptive routing, telemetry-based congestion control, performance isolation capabilities, and a dedicated port supporting the Unified Fabric Manager (UFM)



Flexible Configurations

The E4500 is a flexible AI / Cloud Engine available in multiple configurations, from standard compute to exotic GPU and AI configurations with the latest Photonics AI & GPU, providing incredible deep learning, deep analytics, and AI capabilities. For configurations, see the table below:

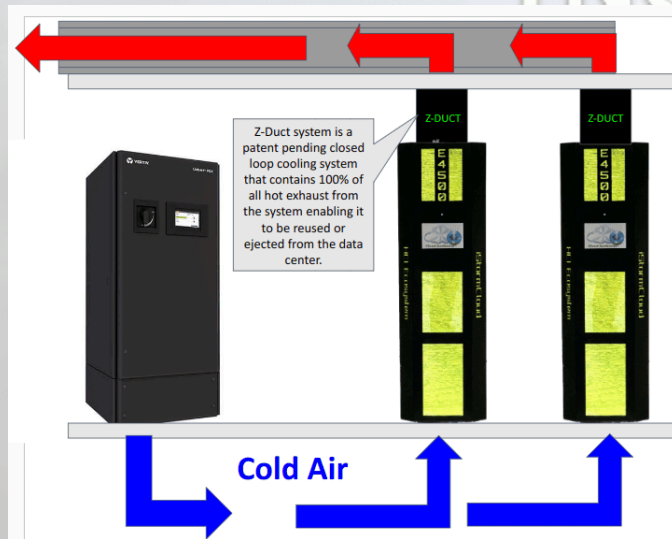
E4500 Mark V Edge Cloud Engine					
Configuration	Core Type	Processor & Cores	AI - GPU	iFLASH Storage	Network
E4500-I6K17P	Intel	Intel® Xeon® 6978P Processor 504M Cache, 2.10 GHz 480 - 6880 Cores	Olympus AI / 1,800,000 AI cores / Memory Bandwidth 21 PBps / Fabric Bandwidth 214 PBps	Nearline NVME 10 to 15.8 Petabytes 20+ Million IOPS NVME-OF 14bto 27.5 Petabytes 40+ Million IOPS	Quantum-X800 Infiniband switch with 72 ports at 800GBps with 57.6TBps backbone per CloudEngine. *** IB to Ethernet Gateway Pending Deployment
E4500-A12K14P	ARM	AmpereOne 192 - 8448 Performance Cores (Primary)	Olympus AI / 1,800,000 AI cores / Memory Bandwidth 21 PBps / Fabric Bandwidth 214 PBps	Nearline NVME 10 to 15.8 Petabytes 20+ Million IOPS NVME-OF 14bto 27.5 Petabytes 40+ Million IOPS	Quantum-X800 Infiniband switch with 72 ports at 800GBps with 57.6TBps backbone per CloudEngine. *** IB to Ethernet Gateway Pending Deployment
E4500-M9K14P	ARM/ INTEL	XEON and AmpereOne ARM Mix Use. 128 - 9216 Cores (Primary)	Olympus AI / 1,800,000 AI cores / Memory Bandwidth 21 PBps / Fabric Bandwidth 214 PBps	Nearline NVME 10 to 15.8 Petabytes 20+ Million IOPS NVME-OF 14bto 27.5 Petabytes 40+ Million IOPS	Quantum-X800 Infiniband switch with 72 ports at 800GBps with 57.6TBps backbone per CloudEngine. *** IB to Ethernet Gateway Pending Deployment

Cybersecurity Compliance: Defense Information Systems Agency (DISA-STIG) - FedRamp - NIST - Sarbanes-Oxley (SOX) - HIPAA - FISMA - Center for Internet Security (CIS) - Common Criteria - PCI - ISO 27001 - FIPS 140 -Cyber Essentials

Site Plan:

The Cloud Engine requires 1 x 3 tile configuration:

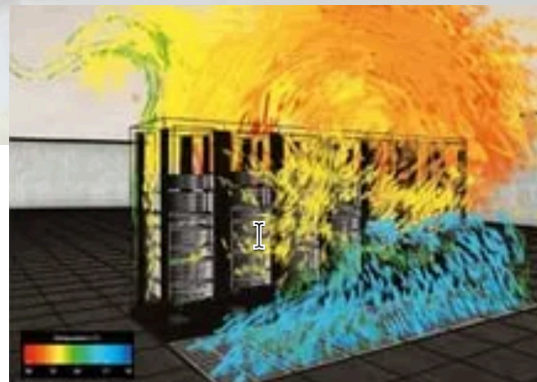
*** Ideal configuration is a raised floor with no less than 30" of clearance under the front and rear side of the iStormCloud HCI Cloud engine. NOTE: The Cloud Engine was designed to run anywhere, even without cooling in harsh environments.



The Cloud Engine requires 30" of front and rear door swing; the Cloud Engine is counterbalanced to ensure the safety of those working on the Cloud Engine. The Cloud Engine is air cooled from the front-side of the frame, creating positive pressure on the front-side of the unit, forcing cold air vertically within the front-side of the frame. The rear side of the Cloud Engine creates negative pressure and has the ability to pre-cool the air returning it to the data center +5 degrees of the intake temperature or you can leverage the plenum solution to connect the Cloud Engine to a hot air

duct above the data center and remove the air from the facility or repurpose the air to heat. The design of the iStormCloud Ecosystems maximize data center efficiencies by completely eliminating hot aisle and cold aisle altogether. This solution enables data centers to run more effectively, eliminating space, reducing electric and cooling cost.

The picture to the left is a thermal image of a traditional compute and network rack demonstrating the cooling and heat issues facing today's modern data centers. Imagine a room with hundreds of racks, the issues created, and the main reason data centers fail and outages occur. This type of heat creates a failure cycle in the data center that eventually causes the data center to shutdown and fail. This often happens in large cloud and corporate data centers. This is where the iStormCloud Engines solve the cooling issue with their patented cooling solution.



The Cloud Engine has a series of sensors and automatic HA features for its cooling, compute, storage, and network solutions with an advanced military grade dual admin console. The secondary admin access panel on the front-side of the system is to be accessed by trained personnel only. Its purpose is to show any system faults and alerts on the Cloud Engine.

The admin panel monitors and controls all network, compute, storage, and power within the frame. The admin console also provides remote access via a secured web interface. This feature is only available to Cloud Authority and its field engineers. Clients have full access to their subscription / VPC's. Clients are enabled to fully leverage all the capabilities within the Cloud Solution, create and remove environments at will, and scale as needed within the Frame or across a Cloud Vault.

Use Cases:

The E4500 iStormCloud HCI Ecosystem is intended for Hybrid / Edge Cloud solutions to enable clients to move workloads to Cloud Authority's CloudVault TM . It may be used in remote offices for a complete RBO solution with advanced replication and DRS capabilities. For larger Cloud deployments, clients will sit on E7000 Cloud Engines within a Cloud Vault. The E7000 Series Vaults start at 11200 Cores and scale to 552,960 cores in a V1 Vault. There are multiple Vault configurations from V1 to V7. For more information on this advanced Cloud Engine, contact your Cloud Authority representative.

For the Military, it may be used as a secure Edge Cloud serving onboard Ships, Aircraft, Land based, and large mobile platforms to serve as a command and control system. It can scale via Multi-Master data replication / Cloud to a multi-cloud solution providing a single pane of glass of the entire battlefield.

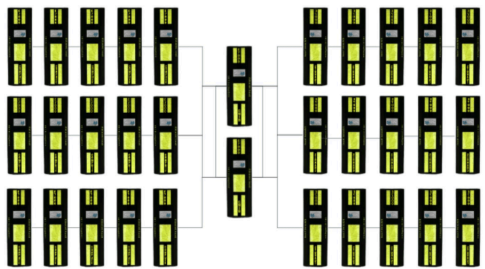
Additional iStormCloud Solutions:



(2 - man carry, can be deployed in any field of operation)

R2200-HTC:

This is a hardened 5U ruggedized appliance with 688 Platinum Intel cores, or 1152 ARM AmpereOne cores, 16TB(Intel) to 24TB(ARM)of RAM, up to 730TB(Intel) and 2.14PB(ARM) 20+M IOPS raw performance. 5G enabled cellular modem for a secured private network. Scalable across multi-cloud / CloudVault. - Military Only



V1 Vault - 1200sqft - True Enterprise Scale

E7000 iStormCloud Engine:

CAG Primary Cloud Engine with 13,072 - 392,160 Platinum Intel or 14,592 to 437,760 AmpereOne cores in a V1(Vault), 1140 Petabytes to 1.2 Exabytes of iFlash NVME-OF Storage 40+ Million IOPS raw performance. A single V1 Vault sits within a 11x30 tile footprint. This is a Core Cloud Site solution, not for corporate clients - Military only.

X-MVS
The power & scale of the Cloud in a hardened mobile armored box!

X-MVS System Config	Cores	RAM / SRAM GB	iFLASH NVME PB
E7000 Compute - AmpereOne	58,368.00	1216	109.2
E7000 Storage - Intel 6700	4,864.00	158	37.5
E7000 AI	1,800,000.00	44	2

TNG
Sovereign Group

X-MVS (Mobile Vault Solution)

Special hardened mobile container running a series of E7000 AI & Cloud Engines, a complete mobile data center anywhere in the world. This solution can scale up to 50K Platinum or 58K AmpereOne cores, 1.2PB of RAM and 109PB of NVME-OF Storage per container and can scale to Vaults with an optional MVS CMIB solution scaling to million of cores and beyond exabytes of data. - Civilian & Military

All iStormCloud Engines run a hardened secure VDI solution with ruggedized tablets to multi-screen CAC enabled thin clients. VDI appliances run on all iStormCloud Engines. Hybrid Cloud to Private Cloud solutions with advanced caching and replication software running on our advanced Cloud Engines. **Patents:** 167 Patents pending on latest innovations.