

MISSION READY.

0000  
20  
6  
AMMS



**OnTime networks**

RUGGED ETHERNET AND TIMING SOLUTIONS



CLOUDBERRY MIL by OnTime networks

**CM-6200** COMe **ADVANCED MISSION MANAGEMENT SYSTEM**

**AMMS**

PRODUCT OVERVIEW

**CM-6200COMe ADVANCED MISSION MANAGEMENT SYSTEM (AMMS)**

As technology advances and systems become more and more network-centric, platform capability requirement is rapidly growing. Modern mission systems must quickly adapt to the ever-changing mission needs by integrating new cameras, sensors, communications suites, weapons, and more.

Customers rely on OnTime Networks to provide expertise in a wide range of electronic, mechanical and software engineering applications with a focus on network switching, routing, "tapping," timing technology and compute platforms. From feasibility studies and due diligence, to component design and turnkey implementation, OnTime Networks follows rigorous development and testing procedures to support even the most demanding timelines and quality control standards.

Today's mission management systems must meet size, weight, and power (SWaP) demands while providing the scalability and flexibility to handle all of the mission tasks today's warfighter may encounter.

In order to rapidly update systems to respond to the latest threats, system integrators must be able to provide shorter timeframes to field new mission management capabilities. That means going from development to deployment as quickly as possible.

*MISSION-READY, POWERFUL, FLEXIBLE, SCALABLE AND  
BASED ON COMMERCIAL OPEN STANDARDS - MINIMIZING  
COST, RISK AND PROGRAM LEADTIME*

**THE CLOUDBERRY MIL CM-6200COMe ADVANCED MISSION MANAGEMENT SYSTEM PLATFORM**

The CM-6200COMe is a turnkey all-in-one rugged mission management, communication, and compute platform, purpose-built to meet the requirements of modern fighting vehicles. It offers a high-performance Commercial Off-The-Shelf (COTS)-based, open-systems architecture platform that provides advanced interoperability for mission-critical, multi-sensored systems, configurable to meet the most demanding processing requirements for today's military applications.

**OnTime**  
NETWORKS

**BUILT TO MEET THE DEMANDS OF TODAY'S MILITARY**

The CM-6200COMe AMMS is built to meet the demands of today's modern warfighter, with its open system architecture, powerful graphics and data processing, ultra-dense I/O, and feature-rich capabilities in an ultra-robust and extremely small form-factor packaging. The unit is IP68-enclosed and designed to meet multiple environmental and rugged military standards, providing unlimited deployment capability into any extreme environment. The CM-6200COMe AMMS reduces cost and complexity, while increasing versatility and capabilities. It develops open standards and best practices to enable, enhance and accelerate the deployment of affordable, capable, interoperable mission management systems.

- › Reduce development cycle time and cost
- › Reduce systems integration cost and risk
- › Increase commonality and reuse
- › Reduce sustainment and modernization cost
- › Support capability evolution and mitigate obsolescence
- › Enable technology transition
- › Facilitate interoperability



The CM-6200COMe AMMS is a highly scalable product family, as it is based on a modular open-system architecture that utilizes COMe modules (Type 6) and MXM COTS boards with a specialized carrier board assembly. The design ensures fast time to market for many customer applications and combines high performance CPU and GPGPU processing capabilities, HD full-motion video capture and encode, complete sensor integration and data fusion in a SWaP optimized system.

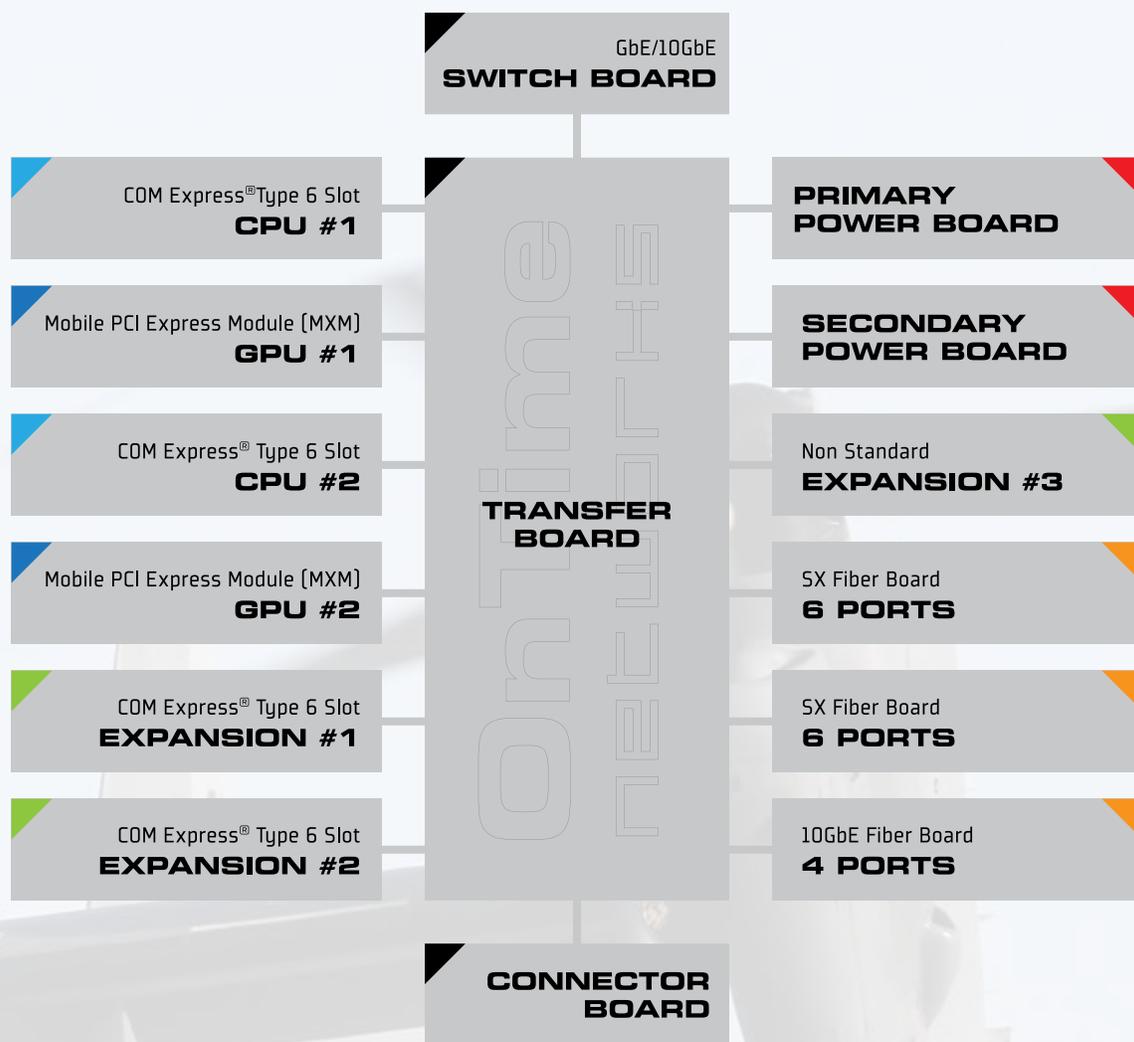
The CM-6200COMe AMMS provides a cost-efficient, proven and technically stable solution to deploy next generation systems quickly. The modular design ensures fast customization features that allow the system to adapt to the specific customer and end-user requirements of multiple mission applications quickly. The rugged computer system runs most Linux-based application without requiring code change.

The CM-6200COMe AMMS can provide the following capabilities in an all-in-one box solution:

- › Gigabit and 10 Gigabit Switch with various fiber and copper options
- › Various Software Router Options, including NIAP Certification for Commercial Solutions for Classified (CSfC)
- › State-of-the-Art Firewall
- › Optional GPS Time Synchronization Server (IEEE 1588 PTP v1/v2, NTP, IRIG-B, PPS)
- › Multiple Central Processing Units (CPU)
- › Multiple Graphics Processing Units (GPU)
- › I/O Interfaces
- › Video Processing
- › Optional External Mass Storage Interface

The CPUs can be configured with most standard operating systems, including Linux or Windows. Further, the CM-6200COMe AMMS supports both GbE and 10GbE internal speed to each of the internal CPU boards, and the GPU boards can be omitted in case the built-in GPU of the CPUs are used instead.





### *HIGH-TECHNOLOGY READINESS LEVEL SYSTEM WITH ROADMAP FOR NEW TECHNOLOGY INSERTION AND OBSOLESCENCE MITIGATION*

#### **THE STRENGTH OF THE AMMS PLATFORM**

OnTime Networks developed the AMMS platform as a comprehensive open system of software and hardware, with the goal to provide a high level of scalability and flexibility for mission-critical embedded computing and network systems for aerospace and defense applications. The AMMS is a creative and innovative alternative solution to OpenVPX that suits most requirements and objectives. The AMMS relies partially on using COTS product elements and is designed to be used across a wide range of installation and platform types, such as ground fixed, ground mobile, airborne fixed-wing, airborne rotary-wing, naval surface, and naval sub-surface applications.

Defense-embedded computing systems, whether for network- or sensor-based processing, can benefit from the modularity, performance, and flexibility of the AMMS. With its rugged design and architectural robustness, the AMMS platform is a natural contender for performance-critical systems.

#### **OPENVPX NOW HAS COMPETITION**

In the embedded-computing industry, OpenVPX is the default solution for many in defense applications because it is perceived that VPX is the only OPEN standard that allows customers to use COTS products from multiple vendors, making it easier to upgrade, prolong the life of a system, and provide a common software framework for the program. With the AMMS platform, customers can get all these benefits, by having access to a wide selection of boards, for those system elements which are able to be upgraded, including the latest Intel® i7 series CPUs, Nvidia® MXM based GPUs, FPGAs, 10G switch/router, etc., using COM Express® instead of VPX cards. The AMMS is comparable with a 3U VPX platform in size, weight and power (SWaP) while reducing cost by an average of 20%.

#### **RAPID DEPLOYMENT**

To decrease integration time, the CM-6200COMe AMMS has been designed with the focus on rapid deployment. The unit can be quickly and easily adapted to platform-specific requirements based on integration of COTS open architecture add-on cards.

The CM-6200COMe AMMS is a customizable COTS all-in-one rugged mission management, communication, and compute platform that can provide the necessary MIL-STD-compliant functionality, while saving time and costs. Its versatility allows the unit to be configured with the latest high-performance CPU, graphics, video processing, networking, I/O and storage modules to meet the rugged mobile processing needs of today's warfighter. The turnkey, pre-qualified platform also reduces technical risk and program management overhead while maximizing use of open architecture COTS building blocks.



**FULLY SEALED CHASSIS**

The CM-6200C0Me AMMS chassis is completely sealed, meets IP-68 requirements and is built to survive harsh temperature, shock and vibration environments.



**CUSTOMIZABLE FRONT PANEL**

The CM-6200C0Me AMMS front panel flexibility allows for custom connector layouts with client logo, connectors & silk-screening



**CHASSIS METALWORK**

The CM-6200C0Me AMMS housing is based on precision machined aeronautical aluminum with SurTec 650 coating that fulfills MIL-DTL-81706-B and MIL-DTL 5541-F standards. All panels and joints incorporate EMI gaskets.



**COOLING OPTIONS**

The CM-6200C0Me AMMS is available as a Fanless and Passive Cooling option to optimize heat dissipation for the specific application. Optimized thermal transfer technology is used to ensure survival at extreme temperature. The core system has no moving parts. Only the optional fan tray, which sits on top of the fully sealed CM-6200C0Me AMMS housing, has moving parts. The fan tray utilizes long lasting, sealed IP68-certified waterproof and dustproof electric motors that are perfect for harsh environments. The high-speed, high-volume fans are thermostatically controlled for quiet operation. The high-heat components of the CM-6200C0Me AMMS are in direct contact with the enclosure fins, providing the most efficient heat dissipation possible.



ACTIVE COOLING OPTION



PASSIVE COOLING OPTION



**ETHERNET SWITCH**

The CM-6200C0Me AMMS comes standard with a fully managed Layer 2/3 Gigabit/10 Gigabit switch that provides a powerful set of networking features, including support for IPv4 multicast traffic filtering according to static filters or IGMP snooping, Virtual Local Area Networks (VLANs), port control (speed/mode/statistics, flow control), Quality of Service (QoS) traffic prioritization, Link Aggregation (802.3ad), SNMP v1/v2/v3 management, secure authentication (802.1X, ACLs, Web/CLI), port mirroring and redundancy based on RSTP/MSTP or High-availability Seamless Redundancy (HSR).



**ROUTER**

The CM-6200C0Me AMMS can optionally be equipped with full dynamic Layer 3 routing capability. Currently, OnTime Networks offers the following three (3) Layer 3 router options:

- a. OnTime VyOS router package
- b. Cisco 5921 Embedded Services Router (ESR) with Advanced Enterprise protocols
- c. Architecture Technology Corp. (ATC) CRR-1000-5 Routing and Encryption Suite (ARES) with NIAP, CSfC, and Common Criteria (CC) certification



**GNSS TIME SERVER**

The CM-6200C0Me AMMS can optionally be equipped with the GNSS Time Server Capability (IEEE 1588 PTP, NTP, IRIG-B and PPS) which delivers high-integrity precision timing in demanding applications world-wide. Support for BeiDou and GLONASS constellations in addition to GPS enables compliance with national requirements. The concurrent GNSS receiver can receive and track up to three (3) GNSS systems simultaneously. By default, the receiver is configured for concurrent GPS and GLONASS, including QZSS reception. The integrated GNSS Time Server is designed for today's modern, network-centric applications and further accommodates an OCXO with 0.1ppm. In addition to utilizing the integrated GNSS receiver, the unit can be synchronized by an external reference, such as an external GPS receiver, via NMEA telegram and PPS input or an IRIG-B DC input source.

- Multiple Central Processing Units (CPU)
- Multiple Graphics Processing Units (GPU)



**CENTRAL PROCESSING UNIT FEATURES:**

The CM-6200COMe AMMS can optionally be equipped with multiple COM Express® Type 6 Single Board Computer (SBC) modules for customer software. The CPU operating system can be based either on Windows 10 or Linux.

Possible CPU solutions include:

- » **AMD RYZEN™**
- » 2x AMD V1807B, 4x 3.35 GHz (3.75 GHz)
- » Power consumption per CPU: 35-54 W
- » 8 GB soldered RAM (up to 32G with RAM modules)
- » Integrated SoC (Vega 11 Graphics), 1.8TFLOPS

**INTEL I7™ (8th Gen Intel® Core™)**

- » 2 x Intel® Core™ i7-8665UE, 4x 1.7 GHz, GT2
- » Power consumption per CPU: 15W
- » 8GB soldered RAM (up to 32GB with RAM modules)
- » On-board disk up to 1TB.  
Note: On-board disk has impact on available GPU PEG lanes.

Up to 128GB disk per CPU via SATA III



**GRAPHICS PROCESSING UNIT FEATURES:**

The CM-6200COMe AMMS can optionally be equipped with two (2) dedicated Mobile PCI Express Module (MXM) GPUs.

Possible GPU solutions include:

- » 2x NVIDIA 1050Ti
- » Power consumption per GPU: up to 60W
- » 768 CUDA cores (2.3TFLOPS)

The MXM is an interconnect standard for GPUs (MXM Graphics Modules) in all-in-one PCs, mobile workstations, embedded systems, and small-form-factor PCs using PCI Express created by MXM-SIG.



**COM EXPRESS® TYPE 6 EXPANSION SLOTS**

The CM-6200COMe AMMS can optionally be equipped with two (2) additional expansion boards based on the standard COM Express® Modules. COM Express® Type 6 is a versatile standard offering a broad range of I/O interfaces including intense graphics support, Digital Display Interfaces (DisplayPort) and super-fast USB 3.0 to serve many different application requirements of the various market segments.



**VIDEO PROCESSING FEATURES**

The CM-6200COMe AMMS can optionally be equipped with up to two (2) dedicated video processing boards, by using the expansion COM Express® Type 6 slots.



**RUGGED FIBER OPTICS**

The CM-6200COMe AMMS integrates a well-designed fiber optic interconnect solution for mission-critical military systems that demand higher data transmission rates over longer distances to drive radar, avionics, and surveillance systems.



**SOFTWARE/OPERATING SYSTEM**

The CM-6200COMe AMMS can offer various Real Time Operating Systems, such as Windows 10®, or Linux®



**POWER SUPPLY OPTIONS**

The CM-6200COMe AMMS offers a dual power supply implementation for redundancy. Each power supply can power the entire platform, and only one supply runs at a time. Only the primary voltage supply is used in a normal situation, but if this supply fails, the secondary power supply starts running to keep the platform powered up. The switch between the power supplies is seamless. The standby power supply consumes minimal power (no active internal loads).



**ENDLESS CUSTOMIZATION OPTIONS**

OnTime Networks specializes in customizing its solutions to specific customer needs. The open architecture and flexibility of the CM-6200COMe AMMS allows for a wide variety of customization options.



**FIREWALL**

The CM-6200COMe AMMS can optionally be equipped with a firewall network security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules. A firewall typically establishes a barrier between a trusted internal network and untrusted external network, such as the Internet.



**BIT SYSTEM TEST SOLUTION**

The CM-6200COMe AMMS offers Built-in Test (BIT), a test solution to improve the reliability, safety and security of mission critical applications. The built-in BIT provides a level of confidence in the correct operation of the CM-6200COMe AMMS platform at both power-up and during normal operation.

- » Power-up BIT (PBIT); comprehensive tests, including hardware self-test and memory tests of hardware.
- » Continuous BIT (CBIT); the CBIT is performed on hardware while the application is active.
- » Initiated BIT (IBIT); the IBIT is performed on hardware when ordered by user via SNMP.



**EXTERNAL MASS STORAGE DEVICE**

The CM-6200COMe AMMS offers the option to connect two (2) external mass storage devices. Each drive can provide up to 4 TB of storage. The removable drives are mounted in a rugged docking bay, allowing quick removal and replacement with an alternate SSD. This feature is also useful when handling classified information, as the SSD can be removed and stored in a secure location.



**VERSATILE I/O**

The CM-6200COMe AMMS offers multiple built-in I/O and flexible add-in card options via the COM Express® Type 6 standard. Choose from a wide range of standard digital and analog interfaces to fit your exact requirements.



**MOUNTING**

The 6200COMe AMMS offers fixed mounting or tray mounting solutions for space efficiency, with small footprint and compact size designs.



**SUSTAINABLE PRODUCTS**

A key consideration during the design phase of the CM-6200COMe AMMS was to make it sustainable and highly reliable in order to match the long lifecycle requirements of most military vehicles and aircraft applications, and to allow to update system capabilities.



**DOCUMENTATION AND DATA PACKAGE**

OnTime Networks can provide an extensive documentation and data package in support of early deployment, including environmental/EMI qualification test reports, mean time between failure (MTBF) reliability analysis, failure modes and effects analysis (FMEA), design verification test (DVT) reports, and more.



**PHYSICAL CHARACTERISTICS**

**WEIGHT**

19kg (41.88 lbs) (TBD) for fan less solution, 16kg (35.27 lbs) for fan based.

**DIMENSIONS**

Height:	Depth:	Width:
186.5 mm (7.34") fanless solution	390mm (15.35") excluding connectors	250mm (9.84")
143 mm (5.63") fan solution	413mm (16.26") including connectors	

**ENCLOSURE METAL**

Aluminum EN AW 5083

**PAINT AND SURFACE**

**Surface Treatment**

Compliant with MIL-DTL-81706B "Chemical Conversion Materials for Coating Aluminum and Aluminum Alloys" e.g. SurTec 650 chromiAL<sup>®</sup> (a hexavalent chromium-free passivation for aluminum)

**PAINT FINISH**

Powder Coat: RAL 1013 Pearl white

**POWER CONSUMPTION**

CM-6221F10-COMe-MIL-SS091NDRO

Typical: 215W (TBD)

Maximum: 250W (TBD)

**ENVIRONMENTAL**

	Storage: -46°C to 71°C Operation: -32°C to 63°C AECTP 300 (Ed3) Method 302 & 303 Procedure I & II
TEMPERATURE	3 shocks (-32°C to/from +20°C within one minute) AECTP 300 (Ed3) Method 304 Procedure I, DEF(AUST)5168 -46°C low start test
HUMIDITY	95-100% relative humidity at 24°C for 21 days AECTP 300 (Ed3) Method 306 – Procedure I, DEF(AUST)5168
SALT	Two cycles of 48h with 5% salt concentration AECTP 300 (Ed3) Method 309
DUST	Two 6h cycles of dust blow of particles < 150 µm; 1,5m/s to 9m/s AECTP 300 (Ed3) Method 313 – Procedure I
ALTITUDE	4570m with 56.8kPa AECTP 300 (Ed3) Method 312 – Procedure I & II
SHOCK	40g 11ms, 3 shocks each axis and direction AECTP 400 (Ed3) 403; ANNEX A403; Table A-1
VIBRATION	Wheeled and Tracked Vehicles AECTP 400 (Ed3) Method 401 – ANNEX A; Procedure III: A1, A2; ANNEX B 401
INGRESS PROTECTION	IP65
CONDUCTED RF EMISSION	MIL-STD-461F-CE102
RADIATED RF EMISSION	MIL-STD-461F-RE102
CONDUCTED SUSCEPTIBILITY	MIL-STD-461F-CS101 MIL-STD-461F-CS114 MIL-STD-461F-CS115 MIL-STD-461F-CS116 MIL-STD-461G-CS118
RADIATED SUSCEPTIBILITY	MIL-STD-461F-RS103
POWER INPUT	MIL-STD-1275E

Phone: **+1 866 656 0129**  
contact@ontimenet-us.com

**NORTH AMERICA**  
22 Century Hill Drive  
Suite 101  
Latham, NY 12110 USA

**EUROPE**  
Phone: +47 22090303  
Gjerdrums vei 11  
0484 Oslo - Norway



**OnTimeNet.com** >>

