Centellis® 2100
AdvancedTCA® Platform Core

Flexible configurations make the Centellis 2100 the ideal choice for both central office and data center applications

- Two-slot, 3U, 19" form factor (horizontal slots)
- Targeted for central office and data center environments
- Up to 375 W per slot power and cooling
- PICMG 3.7 Release 1.0 compliant thermal performance
- Integrated shelf management and Base switching infrastructure
- Direct cross-connect circuitry for the Fabric Interface (1G/10G/40G)
- Two user slots for OEM customization
- RoHS 6/6 compliant

The SMART Embedded Computing Centellis® 2100 platform core is a high availability platform ideally suited for data intensive, central office and enterprise networking applications. The low profile makes the Centellis 2100 the optimal candidate for distributed networking functions, low density subscriber areas, or specialized applications. Target applications include security and DPI applicances, distributed control plane functions, IMS/IPTV subsystems, 4G wireless applications, and edge networking and routing.

With power and cooling support for up to 375 W per slot and up to 450 W in a single slot configuration, the Centellis 2100 enables systems integrators to increase performance and I/O bandwidth per slot, while preparing for future performance upgrades that will have increasing power and cooling requirements..

BENEFITS

- Bladed architecture for scalability, minimized cabling and ease of maintenance
- Compact platform with integrated chassis, cooling, power, switching, and shelf management
- Strong ecosystem of off-the-shelf or custom blades allows the platform to be easily configured for a range of applications & upgraded as new technologies become available
- Power & cooling up to 375 Watts per blade slot accommodates today's technology with headroom for higher powered processors in the future
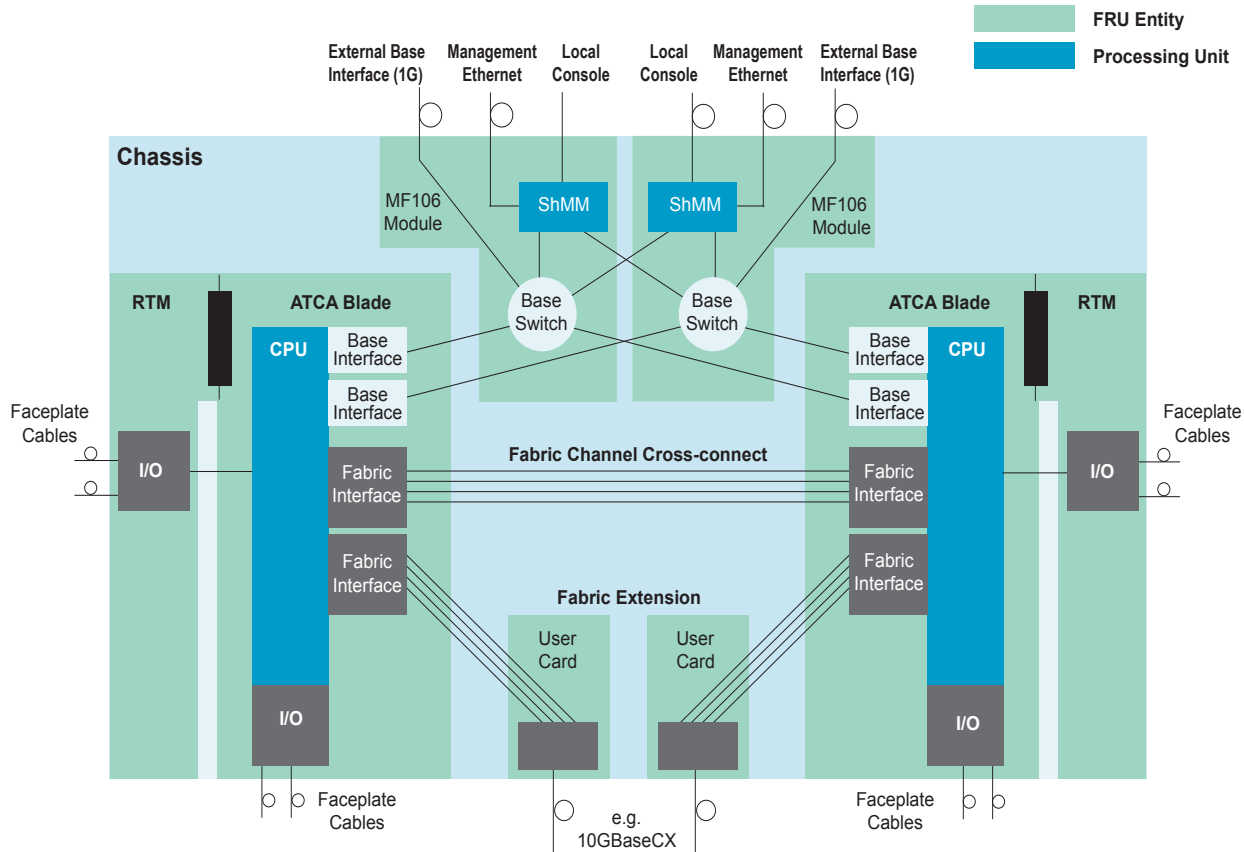
RICH CONTENT ECOSYSTEM

- Advanced packet classification software
- Intel® Xeon® based server blades with storage options
- High throughput packet processing blades based on Intel® Architecture processors

Block Diagram with Two ATCA Blades

Shelf Overview

ENCLOSURE

- Two (2) slots for 8U AdvancedTCA blades
- Two (2) slots for 8U RTMs
- Two (2) user card slots for custom modules
- 40G backplane
- Front-to-rear cooling architecture
- ESD and earth ground points

ENCLOSURE DIMENSIONS

- Height – 132 mm
- Width – 445 mm
- Depth – 420 mm

Note: Dimension figures do not include mounting ears and cable trays unless specifically noted

PRODUCT WEIGHT

- CENT-2100-AC2: 14.28 lbs.

OPERATING ENVIRONMENT

- Operating temperature range (AC): -5 °C to 40 °C @ 90% non-condensing humidity
- Storage temperature range: -40 °C to 70 °C @ 95% relative humidity

POWER REQUIREMENTS

- CENT-2100-AC2 maximum: 1120 Watts
  Note: Shelf power without payload

BACKPLANE

- Zone 1
  - Redundant, bussed IPMI to all blade slots
  - Redundant, bussed -48 VDC to all blade slots

- Zone 2
  - Dual star configuration for the base interface
  - Direct cross-connect routing for fabric connectivity
  - Fabric Channel 2 of AdvancedTCA Slot 1 is routed to User Card 1

- – Fabric Channel 1 of AdvancedTCA Slot 2 is routed to User Card 2
- – Update channel routing between both slots
- – Three redundant telecom bussed clock signals to all hub/ node slots
- Zone 3
  - – PICMG® 3.0 defined open area, application specific

Note: Fabric interface configurations support 1G, 10G and 40G operation

SHELF MANAGEMENT

- 1+1 redundancy architecture
- Two (2) shelf management slots
- Integrated Base switch infrastructure

POWER DISTRIBUTION

- 1+1 redundancy architecture
- CENT-2100-AC2: Two (2) AC power supply (PSU) slots

COOLING

- N+1 redundancy architecture
- Front-to-back cooling architecture
- Single (1) front fan tray unit
- Single (1) rear fan tray unit

RELEVANT STANDARDS

- PICMG 3.0 (form factor, IPMI, base interface, hot swap, RTM)
- PICMG 3.1, Options 1 and 9 (1G, 10G operation)
- PICMG 3.1 R2 (40G operation)
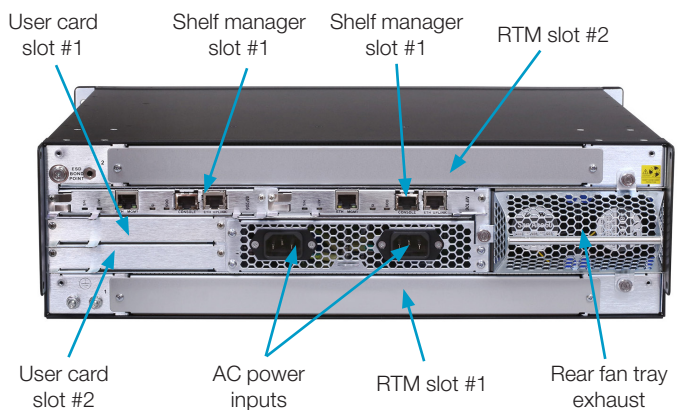- PICMG 3.7 Release 1.0 (thermal performance)

Shelf Layout

FRONT (TOP TO BOTTOM)

- Two (2) horizontal, 8U blade slots
- Alarm panel
- Two (2) slots for AC PSU
- Single (1) front fan tray module slot
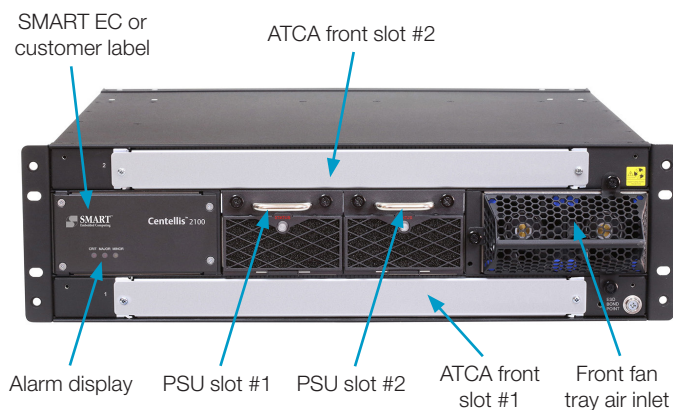
REAR (TOP TO BOTTOM)

- Two (2) horizontal, 8U RTM slots
- Two (2) user card slots
- Two (2) shelf management module slots
- Two (2) AC input receptacles
- Single (1) rear fan tray module slot

SMART EC or customer label | ATCA front slot #2

Alarm display | PSU slot #1 | PSU slot #2 | ATCA front slot #1 | Front fan tray air inlet

User card slot #1 | Shelf manager slot #1 | Shelf manager slot #1 | RTM slot #2

User card slot #2 | AC power inputs | RTM slot #1 | Rear fan tray exhaust

Shelf Management

The purpose of shelf management, as defined by the PICMG 3.0 standard, is to assure proper operation of AdvancedTCA blades and other components within the shelf. The shelf management module continually monitors all low-level, hardware functionality (inventory, sensor, status data, etc.) and reports status to the system manager. It also provides control access to these attributes. Management access to this information is provided via local console and Ethernet interfaces as well as the Service Availability™ Forum (SA Forum) defined HPI interface. Each blade and major shelf component has an Intelligent Platform Management Controller (IPMC) that is responsible for providing this

information to the shelf management module. The Centellis 2100 provides redundant shelf management functionality utilizing an active/standby architecture. Visual indicators, as well as physical interfaces, are provided for direct front panel access.

The Base Interface switch functionality is integrated into the MF106 Shelf Management module. The switch infrastructure supports IEEE 802.3 1000BASE-T, 100BASE-TX, 10BASE-T connectivity to both AdvancedTCA slots as required by PICMG 3.0. One external 1000BASE-T Ethernet interface is available on the face plate for external connectivity. The Base Interface function is completely manageable; locally or remotely.

PROCESSOR

- NXP MPC8306S @ 266 MHz

MEMORY

- 128MB, DDR2 SDRAM
- 128MB boot flash (64 + 64), dual-bank architecture
- 128MB user storage

PANEL ACCESS & INTERFACES

- One (1) 1.0G Base Interface port, RJ-45
- One (1) 10/100BaseT management Ethernet, RJ-45
- One (1) Console port, RJ-45

SHELF MANAGER LED STATUS INDICATORS

- In service (IS)
- Out of service (OOS)
- ACT (Activity Shelf Manager)
- Hot Swap (H/S)

Fan Tray Module

The Centellis 2100 utilizes a fault-tolerant, push-pull cooling architecture and is implemented using front and rear fan tray modules. The cooling system is designed to provide enhanced cooling performance for the most demanding, next generation packet processing based ATCA blades. An integrated shelf manager function monitors and controls the speed of each individual fan for optimal performance. Fan control decisions are made based on air intake temperature, air exhaust temperature and thermal data provided by the blades. In the event of communication failure between the shelf management entity and the fan tray modules, all fans automatically run at full speed to ensure maximum cooling until the failure is eliminated.

GENERAL CHARACTERISTICS

- Front-to-back cooling architecture
- Front blade cooling capacity: 54 cubic feet per minute (CFM)
- RTM cooling capacity: 12 CFM
- Automatic fan speed control

Power Supply Unit (PSU)

Power conditioning for the AC variants of the Centellis 2000 shelf is provided by one or two AC PSUs. Standard AC receptacles are provided for simple installation; the PSU output provides DC power to the backplane on the redundant -48 VDC power rails for blades, RTMs and other shelf components. The actual power connection is located in the rear of the chassis and for safety reasons is a fixed, non-field replaceable unit.

GENERAL CHARACTERISTICS

- Input voltage range (100 - 240 VAC, 50/60 Hz @ 8.5 amps)
- Power infrastructure capable of supporting up to 375 Watts to each slot or 450W to a single slot and 300W to the other slot
- EMI filtering
- Transient voltage suppression

LED STATUS INDICATORS

- Status (red/green)

User Cards

Two User Card slots are provided to allow customers the ability to integrate custom functions into the platform. Examples include Telecom clock generators, 10GB fabric uplinks, or telecom alarms. Each User Card is 110 mm deep x 70 mm wide x 20 mm high and accesses redundant power, IPMC, and clock connections and fabric channel connectivity.

GENERAL CHARACTERISTICS

- Two (2) slots for User Cards in the rear of chassis
- Direct connection to backplane:
  - Redundant -48 V power
  - Redundant intelligent peripheral management controllers (IPMC)
  - Redundant CLK1, CLK2 and CLK3
  - One fabric channel to one ATCA blade (Four LVDS ports)

The SMART Embedded Computing Experience

SMART EC has over 30 years of experience serving the telecommunications industry and has hundreds of thousands of products deployed in the world's communications networks. With that long experience comes a deep understanding of our customers' requirements for on-time, consistent and high quality product coupled with excellent customer support. We deliver on all counts from our own world-class factory and seasoned support experts.

SMART EC strives to speed our customers' time to revenue and make your development process as easy as possible. For example our System Services Framework software is designed to make the configuration of your system painless by automatically inventorying all the system hardware and software elements, allowing you to configure switches and payload boards as well as

monitor and diagnose hardware and software behavior, all from a simple graphical user interface enabling access to a single shelf or multiple shelves locally or remotely. All these features and experiences are supported globally with local system architects and FAEs to keep you on schedule.

We're very flexible and agile. We recognize that you may need your system to have your own unique branding. No problem. We're used to that. We have services that allow you to define the look and feel that's consistent with your company's branding and aesthetic standards. Our flexibility isn't just limited to look and feel. Integration services, unique support requirements, longevity of supply, drop shipments and many more services are designed to make it easy to do business with us and quick for you to get to market and deploy smoothly.

Regulatory Compliance

Item	Description
Designed to comply with NEBS (DC variants only)	Telcordia GR-63-CORE, NEBS Physical Protection, Level 3
	Telcordia GR-1089-CORE, Electromagnetic Compatibility and Electrical Safety — Generic Criteria for Network Telecommunications Equipment. Level 3, Equipment Type 2
Designed to comply with ETSI	ETSI Storage, ETS 300 019-2-1, Class 1.2 equipment, Weatherprotected, not Temperature Controlled Storage Locations
	ETSI Transportation, ETS 300 019-1-2, Class 2.3 equipment, Public Transportation
	ETSI Operation, ETS 300 019-1-3, Class 3.1(E) equipment, Partly Temperature Controlled Locations
	ETSI EN 300-132-2 Environmental Engineering (EE); Power supply interface at the input to telecommunications equipment; Part 2: Operated by direct current (dc)
	ETS-300-753, Equipment Engineering (EE); Acoustic noise emitted by telecommunications equipment
EMC	ETSI EN 300 386 Electromagnetic compatibility and Radio spectrum Matters (ERM); telecommunication network equipment; ElectroMagnetic Compatibility (EMC) requirements, Telecommunication equipment room (attended)
	FCC 47 CFR Part 15 Subpart B (US), Class A
	ECISPR 22, Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment
	AS/NZS CISPR 22 (Australia/New Zealand), Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment
	VCCI Class A (Japan), Voluntary Control Council for Interference by Information Technology Equipment
	Industry Canada ICES-003 Class A
Safety	Compliance to UL/CSA 60950-1, EN 60950-1 and IEC 60950-1 CB Scheme. Marked with U.S. NRTL, Canadian Safety and CE Mark.
RoHS compliance	Directives 2011/65/EU / 2015/863 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the restriction of the use of certain hazardous substances in electrical and electronic equipment. (RoHS)
	DIRECTIVE 2012/19/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on waste electrical and electronic equipment (WEEE)
CE Conformity	Directive 2004/108/EC, Directive 2006/95/EC

Ordering Information

Product	Description
Platform Core Products	
CENT-2100-AC2B	2-slot ATCA chassis, (2) AC PSU, (2) MF106 SHMM (Black)
Optional Platform Core Products	
CENT-2000-UC-10GE	CENT-2000/2100 user card with 10G port (SFPP module not included)
C2000-UC-TA-10GE	CENT-2000/2100 user card with 10G port (SFPP module not included) & Telco Alarm
CENT-2000-UFP	CENT-2000/2100 user card filler panel
CENT-2000-PFP	CENT-2000/2100 PEM/PSU filler panel - Silver
CENT-2000-PFP-B	CENT-2000/2100 PEM/PSU filler panel - Black
C2000-RKMT-M	CENT-2000/2100 19/23" frame mid mounting bracket kit (set of 4)
C2000-RKMT-E	CENT-2000/2100 ETSI 600MM frame mounting bracket kit
C2000-RKMT-A	CENT-2000/2100 ANSI 24" frame mounting bracket kit
C2000-CBLTR	CENT-2000/2100 cable tray bracket (one unit)
AXP-F-FILL-PANEL	Blank filler panel, AXP1620, AXP1440, AXP141x, AXP-640, AXP14-100/400, C2000/C2100 - Front
AXP-R-FILL-PANEL	Blank filler panel, AXP1620, AXP1440, AXP141x, AXP-640, AXP14-100/400, C2000/C2100 - Rear
AC-PC-15A-US	AC power cord, 15 Amps, 125 Volts, US & Canada connector
AC-PC-15A-EU	AC power cord, 15 Amps, 250 Volts, EU connector
AC-PC-15A-JAP	AC power cord, 15 Amps, 125 Volts, Japan connector
FRUs	
CENT-2000-MF106	CENT-2000/2100-R3.0 M100 style SHMM module with integrated base switch
CENT-2100-FFTM	CENT-2100 front fan tray module - Silver
CENT-2100-FFTM-B	CENT-2100 front fan tray module - Black
CENT-2100-RFTM	CENT-2100 rear fan tray module
CENT-2000-PSU-B	CENT-2000/2100 AC power supply unit - Black
CENT-2000-SFM	CENT-2000/2100 replacement air filter (one unit)

SOLUTION SERVICES

Smart Embedded Computing provides a portfolio of solution services optimized to meet your needs throughout the product lifecycle. Design services help speed time-to-market. Deployment services include worldwide technical support. Renewal services enable product longevity and technology refresh.

CONTACT DETAILS

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