**Features**

- Two 210 MSPS 10-Bit ADCs
- One 300 MSPS 14-bit DAC and Two 100 kHz 12 bit DACs
- Customizable FPGA DSP Engine
- Two Programmable GC2011 Hardware FIRs
- 16 Digital I/O Lines for Front Panel
- Two Multipurpose Coax Inputs on Front Panel
- 512 MByte of SDRAM
- 1 Mbit EEPROM
- Dual RS-232 Interfaces
- 100 I/O Lines on the RPM Mezzanine Connector

**Product Description**

The Converter Processor Mezzanine (CPM) family of mezzanine cards from COMINT provide analog to digital conversion, programmable digital signal processing, and digital to analog conversion in a small form factor that is compatible with COMINT’s Re-configurable Processor Module (RPM) host card. The CPM may optionally contain 256 MByte of high-speed SDRAM (with growth to 512 MBytes) as well as dual RS-232 ports and I2C interfaces. In addition to operating as a daughter card for an RPM based system, the CPM can run stand-alone.

The CPM-10210 is the first card in this family to be produced by COMINT. The design is based on a 10-bit 210 MSPS ADC from Analog Devices. COMINT plans to develop additional CPM mezzanine cards based on future offerings from Analog Devices including a 12-bit 210 MSPS ADC and a 14-bit 100 MSPS ADC by Q4 2002. Custom architectures are available by request. The CPM architecture is designed to support converter speeds over 1 GSPS.
SPECIFICATIONS
Model CPM-10210

CUSTOMIZATION
The CPM and RPM family of digital signal processing products can be customized by COMINT to fit many unique customer applications. Multiple CPM/RPM cards can be tightly coupled together to provide additional I/O or processing functionality. The RPM/CPM cards are currently being used to develop electronic warfare and communication digitizer and processing systems. System solutions can be developed by COMINT to integrate the CPM and RPM products with other products from COMINT or COTS providers. For instance COMINT’s 1610 RBC RF Downconverter can be used to convert the RF frequency from 50 kHz through 19 GHz to an IF input for CPM/RPM based products. Multiple 1610 downconverters can be phase-locked together for implementing phase coherent DF (Direction Finding) processing.

GENERAL
Card Size
4.4" x 6.0"
Power Requirements
3 – 5 Amps
Operating Temperature
0° to +60°C

ADC SPECIFICATIONS
Number of Analog Input Channels
Two
Maximum Sampling Rate
210 MSPS
ADC Converter Resolution
10 bits
Input Coupling
AC or DC (set at factory for each converter)
Analog 3 dB cutoff Frequency
500 MHz (AC coupling)
Analog 3 dB cutoff Frequency
99 MHz (DC coupling)
Spur Free Dynamic Range
58 dB
AC Input Power
5 dBm for full scale, factory selectable
Input Impedance
50 Ohms (custom impedance may be set at factory)

HIGH SPEED DAC SPECIFICATIONS
Number of Channels
One
Maximum Sampling Rate
300 MSPS
ADC Converter Resolution
14 bits
Analog Output Voltage
2 Vpp (+/- 1 V)
Spur Free Dynamic Range
58 dB
Output Impedance
50 Ohms

LOW SPEED DAC SPECIFICATIONS
Number Channels
Two
Maximum Sampling Rate
100 kSPS
ADC Converter Resolution
12 bits
Analog Output Voltage
0 - 2.5 Vpp
Output Impedance
50 Ohms

PROCESSING HW SPECIFICATIONS
FPGA
Altera 20K (factory configured with 20K300 to 20K1000)
HW FIRs:
Two GC2011 (dynamically loadable filter taps)
SDRAM Memory
512 MByte (may be used to store data) or augment processing
EEPROM
1 Mbit

POTENTIAL BOARD/FIRMWARE ENHANCEMENTS
• Adaptive Filtering, Matched Filtering, and other advanced DSP techniques can be implemented.
• C-PCI Bus Interface
• Use of FPDP II daughter board with RPM makes it possible to interface RPM/CPM base products (e.g., COMINT’s Model 1800 PPM Pulse Processor Module) to a RAID drive at rates of 400 MByte/Sec
• User-specified algorithms can be implemented by COMINT on either the CPM or RPM FPGA processors for creating custom DSP solutions.
specs_CPM-10210.png

**Clock Selection**

- Internal: 1 MHz to 210 MHz (factory configured)
- PLXO: 50 MHz to 210 MHz (factory configured)
- External Reference: 10 MHz (used with PLXO)

**Auxiliary I/O Interfaces**

- Front Panel TTL Connector: Provides 16 TTL I/O Lines
- RPM Mezzanine Connector: Provides 100 TTL I/O Lines
- RS-232: One Control Port (for stand-alone operation only)
- I2C: One Control Port (for stand-alone operation only)

**COMINT System Building Block Products**

**Digital:**

1810 ADR: Advanced Digital Receiver
1800 PPM: Pulse Processing Module – Configurable EW/ESM/Radar Processor
1800 FQD: Flexible QAM/BPSK/FSK/PSK Demodulator
RPM-Lite: Re-Configurable Processing Module – VME based FPGA engine
RPM-Filter: HiPM Architecture with 8-15 Million Gates, plus ASIC Hardware Acceleration for FIR Filter, Upconversion and Downconversion

**RPM Mezzanine Cards:**

- CPM: Family of A/D and D/A Converters Mezzanine for RPM-Lite
- VPM: Vector Processing Card with FPDP II I/O
- CTM: Converter and Digital Tuner Mezzanine Card
- WDO: Wideband DAC Output Board. Four 300 MSPS 14 Bit DACs

**RF VME Boards:**

- 1610 RBC: RF Downconverter with Frequency Range of 50 kHz to 19 GHz
- 1610 BRC: Baseband to RF Upconverter with Output Frequency up to 3 GHz
COMINT
Configurable System Products

Looking Glass
Real Time 40 MHz Analog BW Spectrum Analyzer

OASIS
Open Architecture Signal Intercept and Analysis System for COMINT and ELINT Applications

Model 3850
Digital Receiver/Demodulator designed to accept selected IF and RF frequencies to 19 GHz and baseband analog or digital inputs up to 40 MHz bandwidth or 100 M-samples per second.

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