



Square Peg

Communications Inc.

Multi-Channel Platform Channel Unit Card Set



OVERVIEW

Square Peg Communications Inc.'s Multi-Channel Platform (MCP) is a hardware and software platform suitable for use in demanding satcom applications.

MCP Channel Units (CUs) are used to implement the physical layer of a variety of air interfaces via a software-defined radio architecture. They are intended for use in satellite or wireless base stations, signal measurement equipment, physical layer test equipment, channel simulators and other applications utilizing Digital Signal Processing (DSP).

A Channel Unit (CU) card set is comprised of a Channel Unit Front Card (CUFC) and a Channel Unit Rear Card (CURC). The CUFC is the DSP and FPGA based signal processing engine that implements the physical layer modulators and demodulators. The CUFC provides an Ethernet IP interface for control, status and data. It also incorporates an IPMI controller for shelf management in a suitably equipped chassis.

The CURC interfaces to the CUFC at digital complex baseband and provides the 70 MHz IF up and down conversion function. It provides two transmit IF output ports (TxA and TxB) and two receive IF input ports

(RxA and RxB). Alternative IF or RF interfaces can be implemented by changing only the CURC.

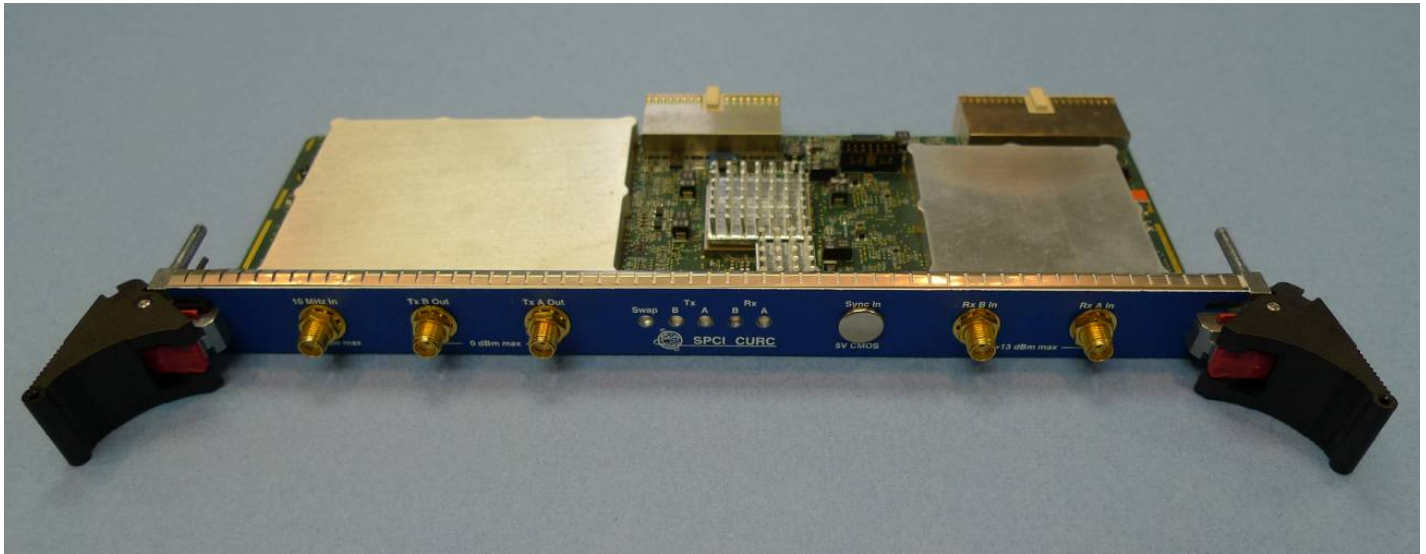
Multiple CUs can be synchronized to an internally generated or externally provided timing pulse. High availability is facilitated by the use of redundant Ethernet connections, hot swap support and extensive built-in test. The CU firmware and configuration settings are field upgradeable via Ethernet.

The CU provides four transmit and four receive composite channels, each of which can be independently tuned within the IF band and output to or input from a selected IF feed. Within each composite channel, the number of bearers is dependent upon the signal bandwidth and the required processing power.



KEY FEATURES

- IF to Ethernet high availability modem
- Ease of maintenance
- Software reconfigurable
- Utilizes floating point processors providing up to 3.6 GFLOPS or 14.4 GOPS per DSP
- Excellent RF performance



CHANNEL UNIT REAR CARD

SPECIFICATIONS

CHANNEL UNIT FRONT CARD

Form factor	6U PICMG® 2.16
Composite channels	4 Tx/Rx (independently tuneable)
Composite channel bandwidth	Application-dependent, up to 1.25 MHz
Bearer channels per composite channel	Application-dependent; e.g., 4 for BGAN or Classic Aero
DSPs per composite channel	1 x 500 / 600 MHz TigerSHARC or 2 x 500 MHz TigerSHARC
FPGA	Xilinx Virtex 4 FX60
DSP / FPGA communications	1 full duplex link port @ 800 Mbps 2 full duplex link ports @ 200 Mbps
DSP expansion	1 expansion connector per DSP cluster for off-board FPGA co-processor
Control processor	PPC405
Ethernet interface	10/100/1000BaseT Auto-switching between Switch A, Switch B and front panel
IPMI interface	Per PICMG® 2.9
On-card configuration	FPGA, DSP & PPC firmware Primary/secondary image select User configuration parameters
Indicators	8 red/orange/green LEDs per composite channel 8 red/orange/green application-specific LEDs 1 blue hot swap LED
Power	Approx. 50W for 4 x 500 MHz DSPs + CURC with 2 Tx + 2 Rx

CHANNEL UNIT REAR CARD

Number of IF feeds	Up to 2 Tx + 2 Rx On-card loopback for self-test
Tx/Rx IF frequency range	50 to 90 MHz
Max. total power per Tx feed	-17 dBm
Max. per-carrier Tx power	Dependent upon number of bearers per composite channel, typically -29 dBm
Tx phase noise density	@ 100 Hz: ≤ -70 dBc/Hz @ 1 kHz: ≤ -80 dBc/Hz @ 10 kHz: ≤ -90 dBc/Hz @ 100 kHz: ≤ -100 dBc/Hz
Tx spurious	< -86 dBm for carrier at -29 dBm
Tx 3 rd order intermodulation	< -55 dBc (2 carriers at -20 dBm)
Tx I/Q imbalances	Negligible
Typical Rx dynamic range	-65 to -25 dBm -10 dBm max total
Reference input	10 MHz @ 0 dBm
Timing sync input (optional)	1 pps, TTL
On-card configuration	FPGA & PPC firmware Calibration data
Indicators	2 red/orange/green LEDs per feed 1 blue hot swap LED
Power	Supplied by CUFC



CONTACT US

For more information contact:

**Square Peg Communications Inc.,
4017 Carling Ave.,
Ottawa, Ontario K2K 2A3
CANADA**

Tel: +1 613 271 0044 Fax: +1 613 271 3007

Web: www.squarepeg.ca

Email: sales@squarepeg.ca

