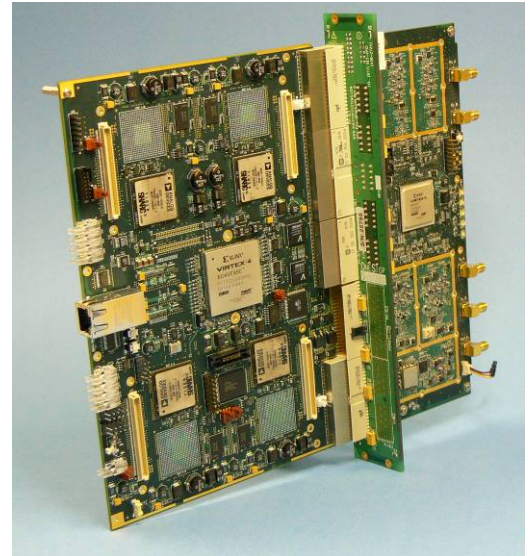




# Square Peg

Communications Inc.

## *Inmarsat Classic Aero Channel Unit Subsystem*



### **OVERVIEW**

The Inmarsat Classic Aero system provides voice, low-speed data and safety communications services to end users via Aircraft Earth Stations (AESs) installed on airborne platforms and Ground Earth Stations (GESs) which provide the interface between the satellite and terrestrial networks. Classic Aero services are used by most of the world's airlines and corporate jet operators, as well as governments for VIP aircraft, coast guard and defence agencies. Inmarsat's worldwide coverage is complemented by the Japanese Civil Aviation Bureau (JCAB) MTSAT satellite, which also provides Classic Aero services.

A new generation of GESs is being installed by Inmarsat, using Square Peg Communications Inc.'s Multi-Channel Platform (MCP) to provide the modems.

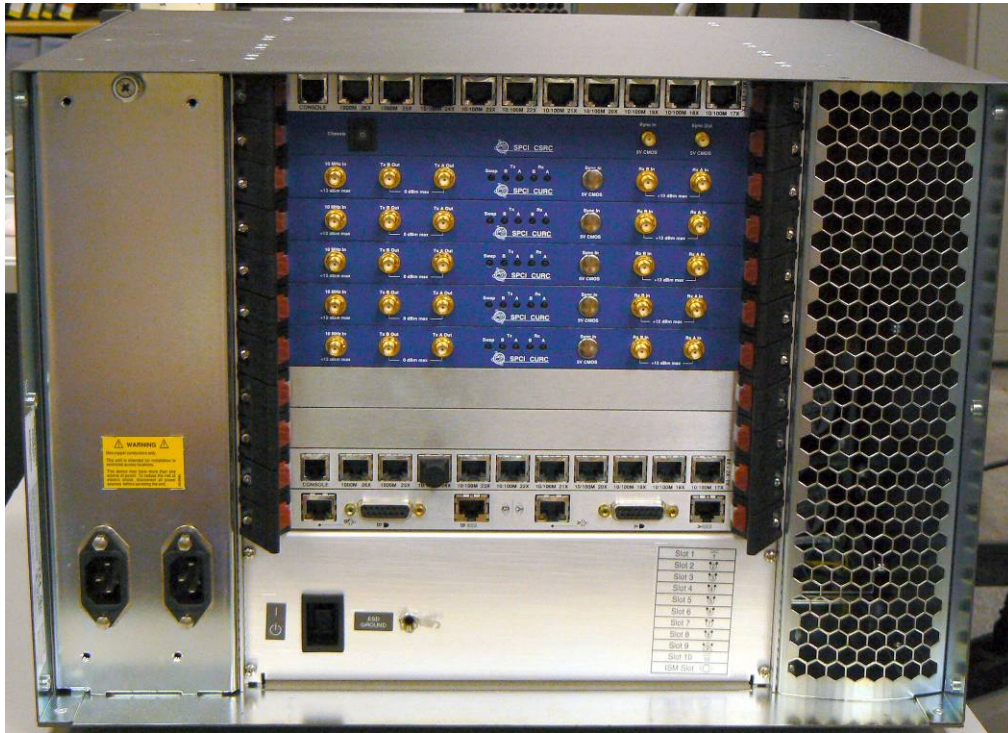
The Inmarsat Classic Aero Channel Unit Subsystem (CUS) is an application of the MCP that provides up to 192 P/R/T or C-channels in a single 7U rack mount chassis. The modems implemented in the CUS are based on those in Square Peg's Inmarsat Aeronautical Ground Data Unit (GDU), the "gold brick" reference used for type approval of AESs for operation on the Inmarsat network.

The architecture of the MCP is based on the use of a common LAN protocol for communication both within an MCP chassis and with other system elements. This provides a high degree of flexibility in configuring the system. The cards comprising a system can be distributed among multiple synchronized MCP chassis. All elements can be redundant for fault tolerance and high availability. This architecture makes it ideal for GES applications requiring fault tolerance, high availability and fully compliant performance in a compact implementation.



### **KEY FEATURES**

- High availability
- Hot swappable elements
- Ease of maintenance
- Up to 6 Channel Units (CUs) per chassis
- Up to 16 transmit and 16 receive channels per CU
- Integrated voice codecs
- Common CU hardware and software for all channel types
- Redundant Ethernet interface
- Built-in dual polarization support



**REAR VIEW OF 7U CHANNEL UNIT SUBSYSTEM**



## SPECIFICATIONS

### CHANNEL UNIT SUBSYSTEM

Enclosure	19" / 7U PICMG® 2.16, rack mount
Cooling	Front to back
Power supplies	N+1, 115/230V AC or 48V DC
Shelf managers	Dual redundant per PICMG® 2.9 RCMP, CLI, GUI, SNMP interfaces Alarm dry contact relays
Ethernet switches	Dual redundant 10/100 + 2 x 1G
Channel Units	1 to 6 front / rear card pairs
Maximum channels per CUS	96 Tx + 96 Rx

### CHANNEL UNIT FUNCTIONALITY

Composite channels	4 Tx/Rx (independently tuneable)
Composite channel bandwidth	500 kHz
Bearer channels per composite channel	4
Operational bearer channel types	P600/1200/10500 R600/1200/10500 T600/1200/10500 C8400/21000
Test bearer types	CW, unframed, random data, random symbols
Voice codecs	4.8 kb/s AMBE for C8400 9.6 kb/s LPC for C21000
Max. data channels per CU	16 P-channel Tx 16 P/R/T-channel Rx
Max. C-channels per CU	8 C-channel Tx/Rx

### CHANNEL UNIT INTERFACES

Ethernet interface	10/100/1000BaseT Auto-switching between Switch A, Switch B and front panel
Monitor and control, data	Proprietary over TCP/IP
PCM samples	RTP over UDP
Tx/Rx IF frequency range	50 to 90 MHz
Max. total power per Tx feed	-17 dBm
Max. per-carrier Tx power	-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 <sup>rd</sup> 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



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