

AXIe Vector Signal Transceiver - mA-6806

COBHAM

Preliminary Quick Sheet

The most important thing we build is trust

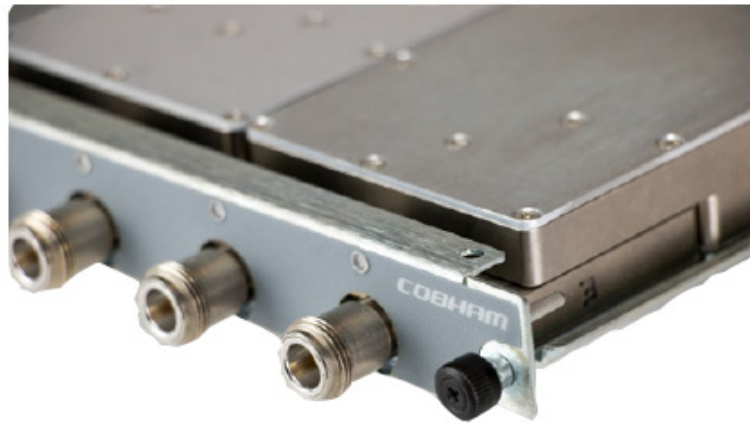
OVERVIEW

Whether you're trying to prototype your latest waveform, validate your transceiver front-end, linearize a power amplifier, or execute production test on your wireless device, the mA-6806 has the performance and speed to tackle your radio measurement problems. The mA-6806 is the industry's first modular AXIe solution that combines the measurement capabilities of a vector signal analyzer with the arbitrary waveform playback functions of a vector signal generator. Combined with precision timing and triggering functionality, the mA-6806 can simultaneously capture and playback 200 MHz of I/Q data to its onboard 4 GB memory. Or, for real-time applications, the mA-6806 can stream the full I/Q bandwidth via its backplane PCI Express interface. For remote applications the mA-6806 can also operate over its Gigabit Ethernet interface as well.

The mA-6806 supports tuning from 1 MHz up to 6 GHz and provides the best phase noise performance of any modular vector transceiver. The mA-6806 provides two duplex ports that can operate in either full or half duplex mode and terminate more input power than any other transceiver solution available. Dedicated RF Input and RF Output ports are also provided. All ports are rugged Type-N connectors for easy and robust device hookup, and still provide over twice the rack density of any other modular transceiver solution (up to 10 transceivers can be configured in a 4U rack space).

AXIe





mA-6806 PRODUCT SPECIFICATIONS

Standard Compliance

AXIe-1 Base Architecture Specification, Revision 3.0

AdvanceTCA PICMG 3.0 R3.0 Specification

Frequency - RF Input

Conversion architecture	Zero-IF
Range	1 MHz to 6 GHz
Tuning Resolution	0.01 Hz
Accuracy	Per backplane CLK100
Stability	Per backplane CLK100
Settling time	500 μ s
Analysis bandwidth	200 MHz (LO > 80 MHz), 100 MHz (LO < 80 MHz)

Amplitude - RF Input

Max safe average power	+10 dBm (RX)/+40 dBm (DXH)/+30 dBm (DXL)
Input impedance	50 ohm
VSWR	<2.0:1 (TX)/<1.5:1 (DXL)/<1.25:1 (DXL)
Absolute accuracy	0.5 dB (SNR > 40 dB)
Linearity	0.2 dB (no change in preamp or attenuator selection, SNR > 40 dB)
Settling time	10 μ s (no change in preamp selection)

Dynamic Range - RF Input

Third order intermodulation distortion	+10 dBm
Noise figure	12 dB (preamp on), 25 dB (preamp off)

Spectral Purity - RF Input

Single sideband phase noise	-120 dBc/Hz at 1 GHz, 10 kHz offset
Residual sideband image	<-60 dBc
Residual LO power	<-70 dBm

Acquisition - RF Input

Max sampling rate	250 MSamples/s (complex)
Resolution	14 bit
Max acquisition length	500 MSamples

List Mode - RF Input

List parameters

List addresses

Trigger source

Address source

LO frequency (Hz), center frequency offset (Hz), phase offset (degrees), reference level (dBm), RF attenuator (dB), Preamp enable, input port, sample rate (MS/s), acquisition length (samples)

4096 for RF Configuration, 65536 for I/Q

Acquisition

Trigger bus, SYNC, STRIG, IQ level, timestamp, software

Trigger bus, software

Triggering - RF Input

Mode	Single, interval
Sources	Trigger bus, SYNC, STRIG, IQ level, timestamp, software
Edge polarity	Rising, falling
Trigger latency	\pm 1 sample

Frequency - RF Output

Conversion architecture	Zero-IF
Range	1 MHz to 6 GHz
Tuning resolution	0.01 Hz
Accuracy	Per backplane CLK100
Stability	Per backplane CLK100
Settling time	500 μ s
Modulation bandwidth	200 MHz

Amplitude - RF Output

Output range	+10 dBm to -110 dBm (TX)/-15 dBm to -130 dBm (DXL)/-30 dBm to -140 dBm (DXH)
Output impedance	50 ohm
VSWR	<2.0:1 (TX)/<1.5:1 (DXL)/<1.25:1 (DXL)
Absolute accuracy	\pm 1.0 dB
Output level resolution	0.1 dB
Settling time	10 μ s

Spectral Purity - RF Output

Single sideband phase noise	-120 dBc/Hz at 1 GHz, 10 kHz offset
Harmonic spurious response	<-35 dBc

Non-harmonic spurious response	<-60 dBc
Residual sideband image	<-60 dBc
Residual LO power	<-60 dBc

Generation - RF Output

Max sampling rate	250 MSamples/s (complex)
Resolution	16 bit
Max generation length	500 MSamples

List Mode - RF Output

List parameters	LO frequency (Hz), center frequency offset (Hz), phase offset (degrees), leveling mode, output level (dBm), output port, sample rate (MS/s), waveform selection
List addresses	4096 RF Configuration, 65536 I/Q Generation
Trigger source	Trigger bus, SYNC, STRIG, timestamp, software
Address source	Trigger bus, software

Triggering - RF Output

Mode	Single, interval
Sources	Trigger bus, SYNC, STRIG, timestamp, software
Edge polarity	Rising, falling
Trigger latency	±1 sample

Backplane Interfaces - Timing and Trigger

CLK100	Used as frequency reference
Trigger bus	12 LVDS pairs, 20 ps max skew
SYNC	20 ps skew to CLK100
STRIG	20 ps skew to CLK100

Backplane Interfaces - Ethernet Base Fabric Channel

Link speed	10/100/1000 Mbps
VLAN support	Yes

Backplane Interfaces - PCI Express Fabric Channels

Fabric channels	1
Link width	x4
Link speed	5 GT/s
Root complex/Endpoint	Endpoint

Environmental

Operating temperature	0° - 50° C
Storage temperature	-40° - +71° C
Humidity	50% at 40° C (in accordance with MIL-PRF-28800F)
Altitude	4600 m
Functional shock	30 G (in accordance with MIL-PRF-28800F)
Random vibration	5 Hz - 500 Hz (in accordance with MIL-PRF-28800F)

Regulatory

Safety compliance	IEC/EN 61010-1
EMC compliance	IEC/EN 61326-1
	IEC/EN 61000-3-2
	IEC/EN 61000-3-3
	MIL-PRF-28800F

Electrical

Operating voltage range	36 - 48 VDC
Power dissipation	100 W

Mechanical

Form factor	1 slot AXIe
Dimensions	30 mm (W) x 322.5 mm (H) x 280 mm (D)
Weight	2.3 kg

mA-6806

COBHAM

For further information please contact:

Stan Pierson
Cobham AvComm

10200 W York Street
Wichita, KS 67215 USA
Tel: 1-316-529-5271
Email: stan.pierson@aeroflex.com