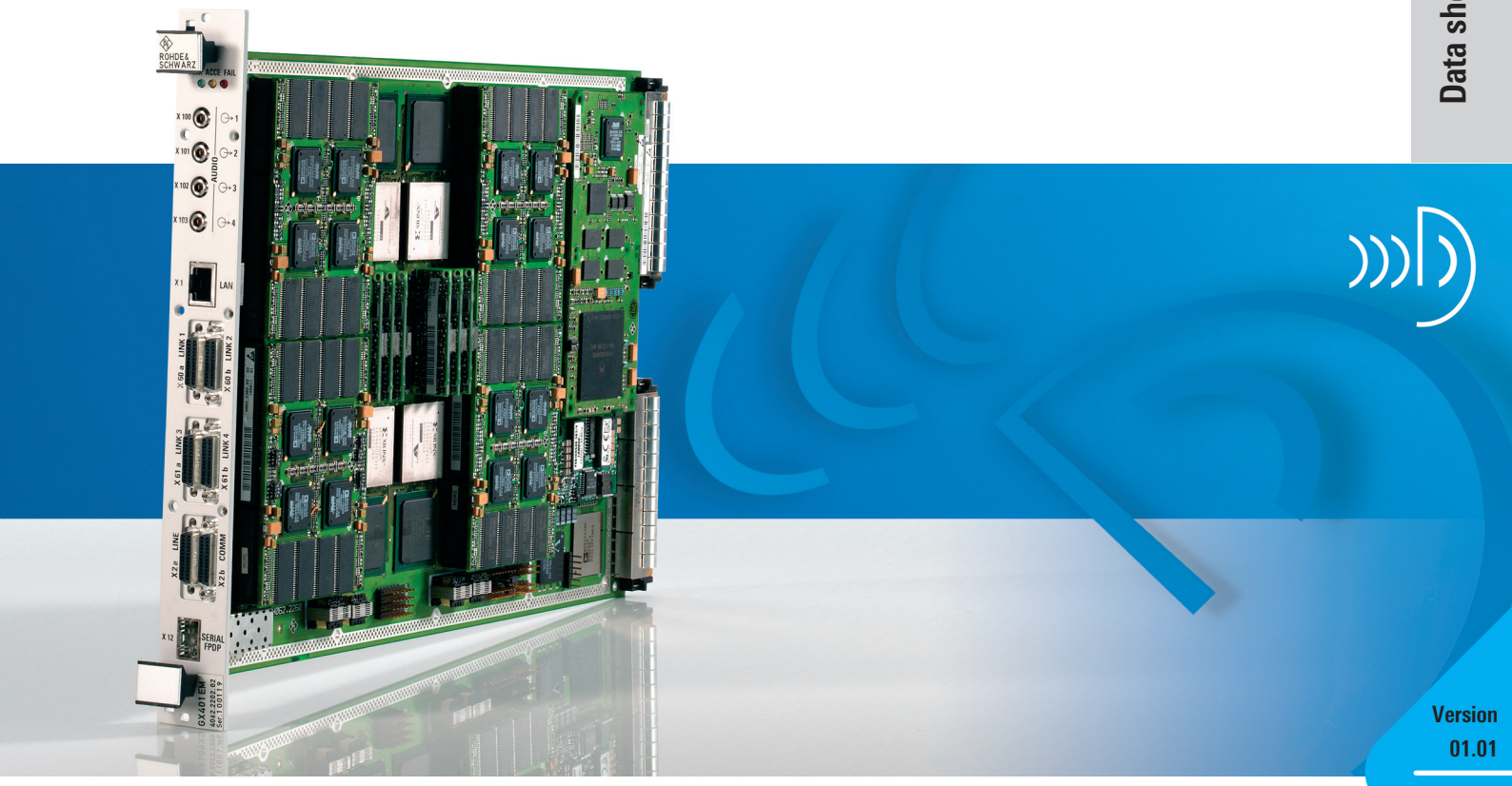
Data sheet



Version 01.01

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R&S®AMMOS® VXI DDC/DSP Board R&S®GX401EM

Automatic Modular Monitoring of Signals

The R&S®GX401EM provides a comprehensive DDC/DSP board expansion for the R&S®AMMOS® R&S®GX400 family of VXI modules. Based on the well-established TigerSHARC® DSP technology from Analog Devices and with supplementary FPGA and ASIC devices, this module provides ample signal processing capacity for the most challenging signal analysis applications.

- A16/32 VXI slave, size C
- Wideband digital downconverter ASIC from Rohde&Schwarz
- Realtime bandwidth up to 20 MHz
- Buffers for wideband IF signals
- Digital filtering, decimation, demodulation
- Analog line and headphone outputs
- Supported by R&S®AMMOS® platform software

ROHDE&SCHWARZ

Introduction

The R&S®GX401EM VXI module provides a powerful digital signal processing platform for efficient RF wideband and narrowband interception and monitoring. It accepts R&S®AMMOS® digital IF data streams from sources such as the R&S®AMMOS® HF Wideband ADC VXI Board R&S®GX401BP or R&S®AMMOS® VHF/UHF Wideband ADC VXI Board R&S®GX405BP, or from the R&S®EM010 and R&S®EM050 VXI receivers.

In combination with the R&S®EM010 (R&S®AMMOS® VXI HF receiver) and the R&S®GX401BP, the R&S®GX401EM provides up to four channels for HF interception.

In combination with the R&S®EM050 (R&S®AMMOS® VXI VHF/UHF receiver) and the R&S®GX405BP, the R&S®GX401EM provides up to four channels for VHF/UHF interception.

The R&S®GX401EM can be used for HF and VHF/UHF interception in parallel (max. four channels).

In addition, the R&S®GX401EM provides a comprehensive processing platform, capable of running the most complex digital signal processing (DSP) algorithms.

The architecture of the R&S®GX401EM permits the implementation of special functionality required for wideband detection and analysis.

Overview

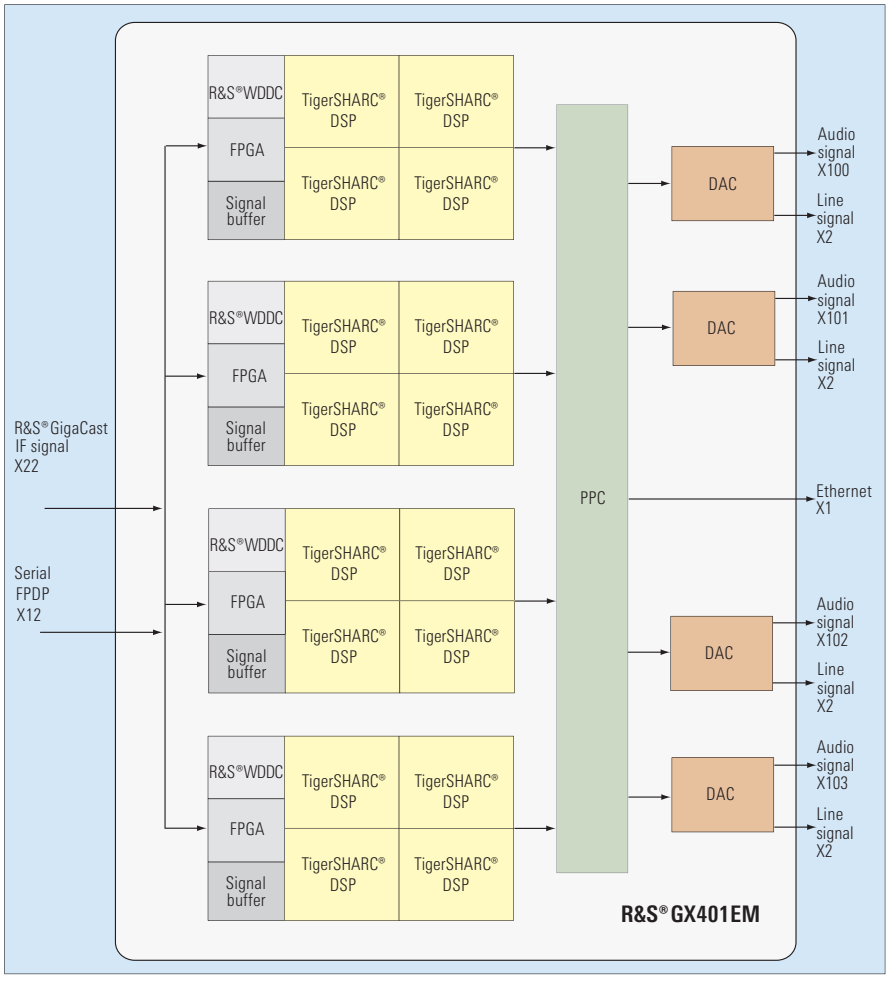
Each of the four independent DSP channels has its own modules:

- Wideband digital IF signal buffer
- Wideband digital downconverter ASIC (Rohde & Schwarz innovation)
- Four TigerSHARC® (Super Harvard Architecture Computer) DSPs
- DSPs that can be equipped with special-purpose applications as required
- Digital-to-analog converter (DAC) for recreating audio output (demodulated signals)
- Fully software-configurable hardware during runtime
- Optical R&S®AMMOS® FPDP/serial digital front panel data interface

System integration

The R&S®GX401EM is fully integrated in the R&S®AMMOS® GX400 family. The modular hardware and software concept of R&S®AMMOS® allows flexible application- and user-specific configurations, which provide narrowband and wideband signal monitoring throughout the entire HF to VHF/UHF range within one single R&S®GX400 sensor group.

The R&S®GX400 sensor group is fully remote-controlled via CORBA and TCP/IP connections by the R&S®AMMOS® IT software.



Block diagram

Specifications

Max. number of interception processing channels (IPC)	4
Number of digital signal processors (DSPs)	16, 4 for each IPC
Digital signal processing	
DSP	ADSP TS101 TigerSHARC® 1.44 GFLOPS 32 bits at 280 Mcycle/s 6144 kbit on-chip memory
DDC	Rohde & Schwarz R&S®WDDC ASIC
Realtime processing bandwidth	up to 20 MHz
Signal buffer for IF signal	up to four independent buffers, 512 Mbyte each (5 s signal time at 20 MHz bandwidth)
Control interface	R&S®AMMOS® VXI
Data interface	SFP optics FPDP/serial interface in accordance with VITA 17.1 (X12) R&S®GigaCast interface (X22) RJ-45 Ethernet 100 Mbit/s (X1)
Audio interface (on request)	four channels
Headphones	3.5 mm stereo plug (X100 to X103)
Line	AMPLIMITE .050 series, 26 pins, 0 dBm/600 Ω (X2)
Displays	FAIL LED ACCE VXI bus access LED PWR LED
VXI module type	A16/32 VXI slave, shielded size C VXI module
Weight	2.3 kg
Power supply	+24 V 1.3 A (max.) –24 V 1.3 A (max.) +12 V 1.1 A (max.) +5 V 9.8 A (max.)

Power consumption	125 W (max.)
Environmental data	
Operating temperature range	0 °C to +50 °C in accordance with EN 60068-2-1, EN 60068-2-2, MIL-STD-810E, method 501.3/502.3
Storage temperature range	–40 °C to +70 °C in accordance with EN 60068-2-1, EN 60068-2-2, MIL-STD-810E, method 501.3/502.3
Shock	EN 60068-2-27 MIL-STD-810E, method 516.4, procedure I, 40 g shock spectrum
Vibration, sinusoidal	EN 60068-2-6, EN 61010-1, VG95332, slide 24, grade A2: 5 Hz to 55 Hz, max 1.8 g, 55 Hz to 150 Hz, 0.5 g const., 12 min each axis
Vibration, random	IEC 60068-2-64 10 Hz to 300 Hz, 1.2 g (rms), 5 min each axis
Humidity	IEC 60068-2-30 operating, up to 95 % relative humidity at +25 °C to +40 °C, noncondensing, 2 cycles
Altitude, operating	2000 m, EN 61010-1
Altitude, storage	4500 m
EMC/VDE	CE mark, in accordance with 89/336/EEC EN 55022 , class B EN 61000-3-2 EN 61000-3-3 EN 55024

More information at
www.rohde-schwarz.com
(search terms: GX401EM, AMMOS)

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