



#### Applications

- RF/IF Signal Sampling/Generation
- High-speed Analog Data Capture
- High-speed Analog Signal Generation

#### Summary

The **FMC-DA4** is an FMC I/O Module, providing two Analog to Digital converters with 14-bit resolution and sampling rates up to 3Gsp/s, and two Digital to Analog converters with 16-bit resolution and sampling rates up to 2.5Gsp/s.

The FMC-DA4 is a VITA 57.1 compliant single width HPC FMC module, designed for use with Alpha Data's VITA 57.1 compliant carrier cards. It provides the user with dual high speed Analog to Digital Converters at 14bits/3GHz and dual high speed Digital to Analog converters at 16bits/2.5GHz along with an external clock input and clock output and a number of bidirectional trigger/synchronisation signals.

Power Consumption ( 3GHz sampling, both ADC channels, 2GHz sampling both DAC channels) 25W, conduction cooled

On-board temperature monitoring

Requires FPGA speed grades of -2 or better to support 12.5 Gbps operation of serial links.

#### Deliverables

FMC-DA4 Board  
 One Year Warranty  
 One Year Technical Support

#### Board Features

- Dual 14-bit 3Gsp/s ADCs
- Dual 16-bit 2.5Gsp/s DACs
- External Clock Input

#### Board Format

VITA 57.1 FPGA Mezzanine Card (FMC)

#### Input/Output Interfaces

##### 2x Dual Analog to Digital Converters

Resolution: 14-bit  
 Max Sample Freq: 330Msp/s to 3Gsp/s  
 Bandwidth: 1MHz to 3000MHz nominal  
 Impedance: 50Ω  
 Connector: SSMC or MCX

Dual 14bit/3GHz ADCs  
 FSI Range adjustable in 1 dB steps  
 The DAC and ADC clocks **must** have a integer ratio

##### 2x Dual Digital to Analog Converters

Resolution: 16-bit  
 Max Sample Freq: 2.5Gsp/s  
 Bandwidth: 10MHz to 3000MHz nominal  
 Impedance: 50Ω  
 Connector: SSMC or MCX

Dual 16bit/2.5GHz DACs  
 Programmable attenuation : to 31dB in 0.5 dB steps

##### 1x External clock input

##### 1x External clock output

**Note:** Clock output shall echo fastest of the ADC/ DAC clock

##### 1x Trigger I/O

##### 1x Auxiliary I/O

##### 1x ADC Sync Signal

**2x Bidirectional Fast IO Signals direct from FPGA.**

**Support**

FMC Pinout available in User Manual

**Environmental Specification****Temperature Ranges**

| Cooling<br>Option | Operating Temperatures |      | Storage Temperatures |       |
|-------------------|------------------------|------|----------------------|-------|
|                   | Min                    | Max  | Min                  | Max   |
| CC1               | -40°C                  | 70°C | -55°C                | 100°C |

Operating Humidity : Up to 95% (non-condensing)

**EMC Standards**

FCC 47CFR Part 2

EN55022:2010 Equipment ClassB

**Ordering Information****Order Code: FMC-DA4**

Address: Suite L4A, 160 Dundee Street,  
Edinburgh, EH11 1DQ, UK  
Telephone: +44 131 558 2600  
Fax: +44 131 558 2700  
email: sales@alpha-data.com  
website: <http://www.alpha-data.com>

Address: 611 Corporate Circle, Suite H  
Golden, CO 80401  
Telephone: (303) 954 8768  
Fax: (866) 820 9956 - toll free  
email: sales@alpha-data.com  
website: <http://www.alpha-data.com>