



## Key Features

- Dual high speed A/D and D/A converters for radar, ultrasonics, eddy-current analysis, software-defined radio
- sampling frequency up to 8 MSPS
- 12-bit resolution
- 16-level Fifo for A/D
- 50  $\Omega$ , 1V<sub>pk</sub>, DC-coupled inputs and outputs, 30 MHz input bandwidth, suitable for sub-sampling
- 32-bit high-speed parallel bus interface
- 3.3V digital supply,  $\pm 5V$  analog supply
- compatible with all D.Module2 DSP boards

## General Description

The D.Module2.ADDA8M12 is a high-speed analog front-end for the D.Module2 DSP boards.

The A/D section uses two THS12082 12-bit 8MSPS Analog-to-Digital converters, driven by single-ended to differential amplifiers. The nominal input voltage is 1V<sub>pk</sub>. Amplifier bandwidth is 30MHz, which allows to use the board in sub-sampling applications like software-defined radio. The 16-level built-in Fifo relaxes the DSP interface constraints and supports efficient DMA-triggered block transfers.

The D/A section uses two DAC7821 Digital-toAnalog converters with 200ns settling time, followed by a high-speed amplifier capable of driving 50  $\Omega$  loads with a 1V<sub>pk</sub> nominal output voltage. The D/A can be synchronized to the A/D converter sampling or operate independently.

An on-board clock generator allows to select 1, 2, 4, or 8 MHz sampling frequency. Other options are external sampling clock input and sampling clock provided by a DSP timer.

The self-stacking design interfaces with a D.Module2 DSP board without further external connections. Analog inputs and outputs are routed to SMA connectors. Alternatively the inputs and outputs can be connected to a base board using standard 2,54mm pitch board-to-board connectors.

The D.Module2.ADDA8M12 does not provide on-board anti-alias filters. If required, external passive LC-filters are recommended.

# D.Module2.ADDA8M12

## Specifications

### Analog Inputs

- 2 channels, simultaneously sampled
- input impedance 50Ω
- DC-coupling
- nominal input voltage  $\pm 1V_{pk}$ ,
- bandwidth 30 MHz
- SMA or 2.54mm pitch header

### Analog Outputs

- 2 channels, simultaneously updated
- output impedance 50Ω
- DC-coupling
- nominal output voltage  $\pm 1V_{pk}$ ,
- SMA or 2.54mm pitch header

### A/D converter

- 2 x THS12082
- 12 bit resolution
- 8 MHz maximum sampling frequency
- 16-level Fifo

### D/A converter

- 2 x DAC7821
- 12 bit resolution
- 200ns settling time
- operates independent or synchronized to A/D converter

### Sampling Clock

- on-board oscillator 1, 2, 4, or 8 MHz
- external clock input 0..8 MHz 50% duty cycle, LVTTTL level, SMA or 2.54mm header optional 50Ω input termination
- DSP Timer, 0 .. 8 MHz, 50% duty cycle

### Bus Interface

- parallel, 32-bit data bus
- access timing: read 30ns, write 10ns
- supports four different base addresses

### Power Supply

- 3.3V digital supply 20mA
- $\pm 5V$  analog supply +5V: 167mA, -5V: 30mA

### Environment

- 0..+70°C operating temperature

### Mechanics

- Size 86.8 x 58.4 mm, height 15.3 mm, boards stackable with 10 mm spacing

### Ordering Information

- D.Module2.ADDA8M12 Standard Module
- DS.ADDA8M12 Development and Board Support Package