

# DPS12 Device Power Supply



AXIe Compatible Instrument with 12 Independent Channels

## Analog Functionality and Features

- 16 bit force voltage resolution
- 16 bit measure voltage/current
- Multiple voltage ranges
- -12 V to +12 V range
- 0 V to +22 V range
- 6 current ranges (25  $\mu$ A to 1.2 A)
- Channel ganging to 2.4 A
- Current clamps and alarms
- Active guard per channel
- Programmable slew rates
- Programmable load compensation
- User analog bus for channel connect flexibility
- Gate ON/OFF
- Built-in ramp function
- Features for Go/No-Go testing
- Full Kelvin sense/alarm per channel
- Window comparator per channel
- 250 KHz source memory engine
- 250 KHz PMU digitizer memory channels
- Robust triggering capability
- Hardware averaging

## Applications

- Digital dominant mixed signal, SOC
- Characterization, wafer sort and final test
- Multi-site, low overhead product solutions

## DPS12 Hardware Description

The DPS12 is a 12 channel analog source/measurement unit in a single slot AXIe 3.1 format. It has voltage forcing functionality along with a source engine and PMU digitizers (250 KHz sample rate). The channels are independently programmed and can be operated in any combination. The DPS12 is divided into two banks with 6 channels per bank. Each bank can have its -12 V to +12 V range shifted up to match application needs.

The DPS12 is compatible with the AXIe standard (ATCA Extensions for ATE) including a calibration bus and star trigger bus connected to each slot (point-to-point) on the backplane: AXI\_DSTAR\_A, B, C & D.

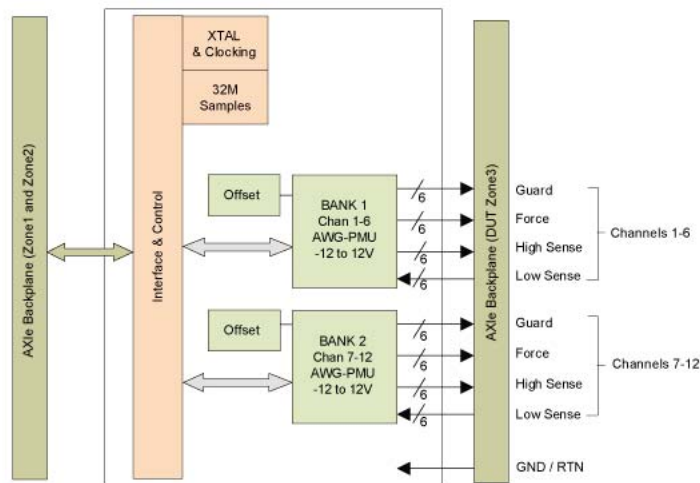


Figure 1: DPS12 Block Diagram

### Force Voltage Functionality

- Four quadrant capability with two voltage ranges and six current ranges from 1200 mA to 25  $\mu$ A
- Each channel can independently FV/MV, FV/MI, MV, MI or HiZ
- Channels 1-4 and 7-10 each have a 16-bit resolution, 250 KHz PMU digitizer unit
- One 16 bit resolution 250 KHz source engine; parallel operation across all channels
- The source engine and digitizer channels share a 32M-sample memory
- All channels can be paired in a master/slave capability to allow ganging higher current capacity
- Trigger or clock mode operation for all channels, allowing pattern control and inter-instrument triggering of source and measure operations
- On-instrument functionality allows go/no-go testing

### Programming

- Drivers for C++, LabWindows/CVI

### SPECIFICATIONS

Force/Measure Voltage	Current Range	Resolution	Accuracy
0 V to 22.0 V	$\pm 25$ mA	0.38 mV	$\pm (0.05\%$ of value + 12.5 mV)
-12.0 V to +12.0 V	$\pm 2.5$ mA		
$\pm 500$ mA	$\pm 250$ $\mu$ A		
-6.0 V to +6.0 V	$\pm 1200$ mA		

Measure Current	Resolution	Accuracy
$\pm 1200$ mA	0.15 nA, Min	$\pm (0.1\%$ of value + 10 nA), Max
$\pm 500$ mA		
$\pm 25$ mA		
$\pm 2.5$ mA		
$\pm 250$ $\mu$ A		
$\pm 25$ $\mu$ A		

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