Device Power Supply - Voltage Source & Measurement Unit
AXIe Compatible Instrument with 48 Independent Channels

Analog Functionality & Features

- 16 bit Force Voltage resolution
- 16 bit Measure Voltage / Current
- Voltage
  - -7.5V to +7.5V Range
- 6 Current Ranges (25uA to 1.2A)
- Channel Ganging to 4A
- Current Clamps and Alarms
- Programmable Load Compensation
- Gate ON / OFF
- Built-in Ramp Function
- Features for Go/No-Go Testing
  - Full Kelvin Sense / Alarm per Channel
  - Window Comparator per Channel
  - 200KHz Source Memory Engine
  - 62.5KHz PMU Digitizer Per Channel
  - Robust Triggering Capability
  - Hardware Averaging

Applications

Characterization and Validation
Multi-Site Automated Production Test
Leakage Current Measurement
Continuity Measurement
Multi-Channel Voltmeter
I-V Curve Measurement

DPS48 Hardware Description

The DPS48 is a 48 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 (62.5KHz sample rate). Each channel may be operated in any one of six current ranges, independently.

The DPS48 is compatible with the AXIe standard (ATCA Extensions for ATE) including a star trigger bus connected to each slot (point-to-point) on the backplane: AXI_DSTAR_A, B, C & D.
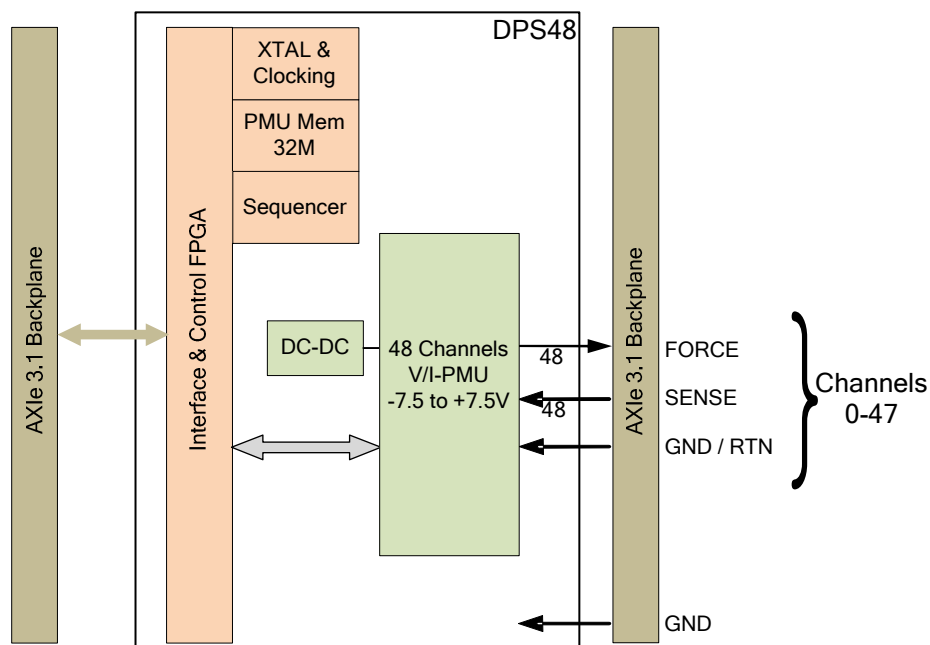

Figure 1: DPS48 Block Diagram

Force Voltage Functionality

- The DPS48 has 4 quadrant capabilities with -7.5V to 7.5V voltage range and 6 current ranges from 1200mA to 25uA.
- Each channel can independently FV/MV, FV/MI, MV, MI or HiZ.
- Each channel has a 62.5KHz PMU digitizer unit.
- One 16 bit resolution 200KHz 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
-7.5V to +7.5V	±1200mA ±500mA ±25mA ±2.5mA ±250uA ±25uA	0.38mV	±(0.05% of value + 12.5mV)

Measure Current	Resolution	Accuracy
±1200mA	36.6uA	±(0.25% of value + 2.4mA)
±500mA	15.3uA	±(0.25% of value + 1.0mA)
±25mA	0.76uA	±(0.1% of value + 50uA)
±2.5mA	76nA	±(0.1% of value + 5.0uA)
±250uA	7.6nA	±(0.1% of value + 500nA)
±25uA	0.76nA	±(0.1% of value + 50nA)

Current Clamps	Resolution	Accuracy
±1200mA	36.6uA	±23mA
±500mA	15.3uA	±6mA
±25mA	0.76uA	±300uA
±2.5mA	76nA	±30uA
±250uA	7.6nA	±3uA
±25uA	0.76nA	±300nA