

JT 5705/USB - MIXED SIGNAL JTAG CONTROLLER

2-TAP USB controller integrated with mixed signal IO functionality



JT5705/USB

- 2 TAP ports (15 MHz)
- 64 I/O channels
- 56 digital
 - 16 with frequency counter;
 - 1 with programmable clock generator;
 - 1 with pulse width measurement
- 8 digital or analog, programmable per channel
- custom programmable FPGA
- capability to synchronize multiple controllers

The JT 5705/USB is a powerful self-contained JTAG instrument. It combines a 15 MHz JTAG/Boundary-scan controller with 64 mixed signal I/O channels plus custom programmable functions. This compact unit was designed for desktop use in hardware validation, (small-scale) production testing as well as (field) service and repair.

Through the I/O channels both digital and analog signals on the connectors and/or test points of a Unit Under Test (UUT) can be measured and driven as part of a JTAG/Boundary-scan test. Thanks to the mixed signal I/O channels of the JT 5705 the test coverage is increased for both the digital and the analog parts of a UUT.

From the total of 64 I/O channels, 8 can be selected as digital or analog channels that can measure or source voltages up to 30 Volts (unipolar) or ± 15 Volts (bipolar). The other 56 channels are digital only. Of these digital channels 16 have a frequency counter, 1 can be used as a programmable clock generator and 1 can be used for pulse width measurements.

In addition to their usage as boundary-scan I/O signals, the I/O channels can also be controlled via appli-

cation specific digital functions that can be programmed in the reconfigurable FPGA (Altera Cyclone type) of the JT 5705. Examples of such functions include CAN bus (excl Phy), E-net(excl Phy), SPI, DDR memory interfaces etc.

Multiple units can be "linked and sync'd" to provide higher I/O and TAP port counts. The unit is fully supported by JTAG Technologies application development tools (ProVition and JTAG Live) plus the full suite of run-time software options such as PIP/LV (drivers for NI LabView), PIP/TS (drivers for TestStand), etc.

Voltage levels

TAPs:	1.05 to 3.6 V; 5 V tolerant
Digital I/O:	1.05 to 3.6 V; 5 V tolerant
Analog I/O:	0 to 30 V or -15 to +15 V

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ELECTRICAL		Over Voltage Protection	
Power		Isolation threshold	VCC + 0.6 V
From USB	5 V, 500 mA	Isolation voltage protection	- 0.5 V to +15 V
External	9-15 V, 0,8 A	Overshoot rejection	Overshoots less than 400 ns will not result in OVP isolation
USB		Pull-up resistor	20 – 50 Kohm
Speed	480 Mb (non-isolated); 12 Mb (isolated)	Other	
Galvanic isolation	400 VAC	Frequency counter	0 to 200 MHz
TAP		Clock generator	0 to 62.5 MHz; step 0.0582 Hz
TCK	1 KHz to 15 MHz	Pulse width measurement	4-8192 ns; accuracy 4 ns, resolution 1ns
Voltage range	1.05 V to 3.6 V [5 V tolerant]	ENVIRONMENTAL MIL-T-28800E Class5 Style E	
Threshold	@ 50% of selected voltage	Temperature	
Digital I/O		Rated range of use	0 °C to 60 °C (boxed); 0 °C to 70 °C (unboxed)
Voltage range	1.05 V to 3.6 V	Storage and transport	-5 °C to 60 °C (boxed); -40 °C to 70 °C (unboxed)
Output current	max ±8 mA @ 3.3 V	Relative Humidity	
Analog I/O		Operating	15% to 90% non-condensing
Voltage range	0 V to 30 V or -15 V to +15 V @ 5 mA max	Storage and transport	5% to 95% non-condensing
Resolution	16 bit [0,5 mV]	Vibration	
Relative fault	± 0,7% full scale	Swept sine resonance search	5 – 55 Hz, 2 g [0.33 mm p-p], 15 min per axis 10 min resonance dwell
Input impedance	1 Mohm parallel with 100 pF	Dimensions	
Output impedance	100 Ohm.	Weight	161 grams
Sample rate	15ks/s	Size (L x W x H)	107 x 175 x 18 mm
Slew rate	0.5V/µs		

Increasing test coverage

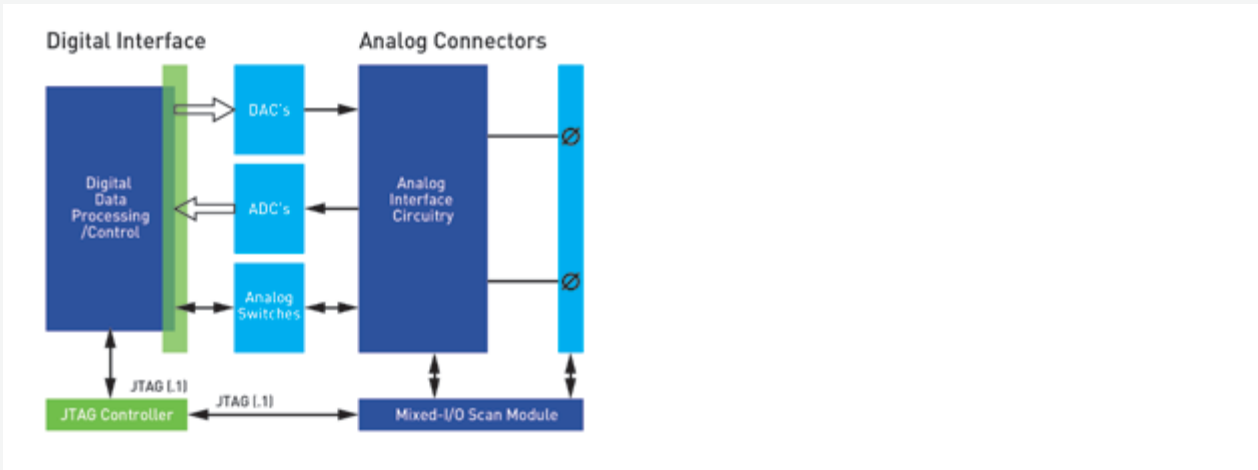


Figure 2 Increasing the test coverage using the mixed signal I/O channels.

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