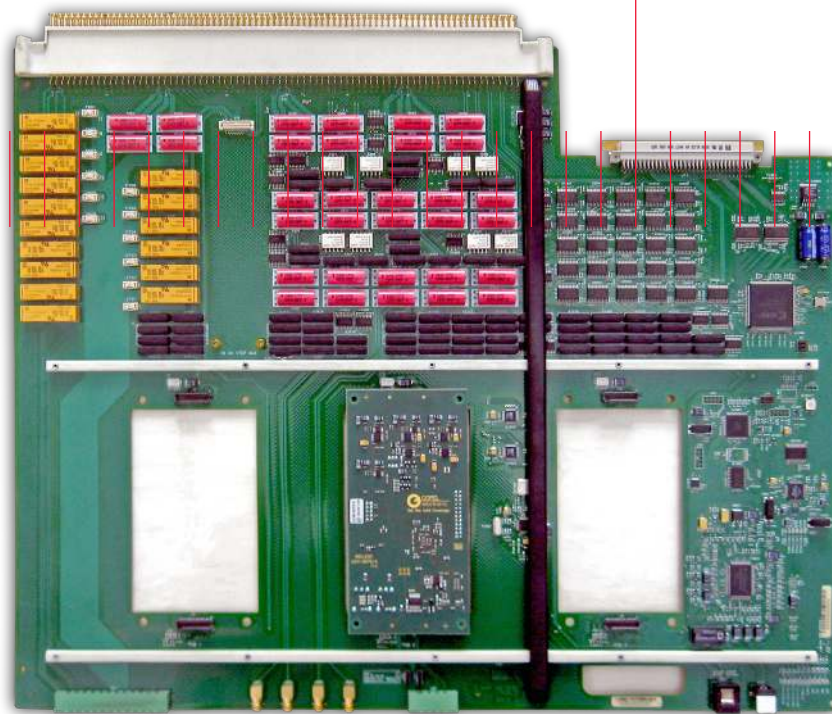


Keysight Technologies

UCM3070 Boundary Scan Module for the Keysight Utility Card

Technical Overview



1. Overview

The UCM3070 is a boundary scan controller, which is customized for integration into the Keysight Technologies, Inc. Utility Card on the Keysight *Medalist* i3070 Series 5 in-circuit test (ICT) system. This controller is based on the GOEPEL SCANBOOSTER architecture and is designed as a plug-in card for usage in a free slot on the Keysight Utility Card.

Highlight of UCM3070 Features

- Two independent voltage- and impedance-programmable test access ports (TAPs)
- Adjustable output voltage and input threshold of the TAP signals
- 2 x 4 parallel interface ports (PIPs) for usage as fast input/output (I/O) signals (e.g. for flash programming)
- Two analog I/Os (for measuring or driving analog voltages)
- Operation via USB2.0 high-speed interface
- Additional external power supply is not required since this is provided by the Keysight Utility Card.
- Integrated self-test functions for extended system analysis

2. Hardware Features of the UCM3070

2.1 PIP Signals

The UCM3070 interface comprises the test access port (TAP) signals and further signals for extended functions and measurements. These include the parallel interface ports (PIPs), whose signals allow control of TAP-synchronous functions. This is advantageous for flash programming. Usually, the Read-, Write- and Enable signals (e.g. WR, RD, CE, CS) are controlled through the boundary scan chain and require a complete shift cycle in order to generate an edge. Therefore it is useful to externally route the control signals via PIP signals to the flash device to considerably accelerate flash programming. Altogether, the UCM3070 provides two groups of four bi-directional digital PIP signals each.

2.2 Analog Signals

The UCM3070 provides two independent bi-directional analog channels. However, they can only be used alternatively to PIP signals PIP2.2 and PIP2.3. Hence you cannot use these two PIP signals. Each analog channel can be driven by a D/A converter and measured by an A/D converter. The D/A converter can be set to high-impedance state, so that the A/D converter is capable of measuring external voltages. The D/A converter can output voltages from 0 V to 4.096 V with an accuracy of ± 0.05 V. The A/D converter can measure voltages from 0 V to 4.096 V with a resolution of 4 mV.

2.3 Signal Adaptation

The UCM3070 module offers some basic functions for signal adaptation. The TAP output signals TCK, TMS, TDO, and TRST can be routed through serial resistors of 15 Ω , 22 Ω , 33 Ω or left inactively (open). The TDI input signal is connected to a pull-down resistor of 220 Ω , 330 Ω , 1 k Ω or to no resistor.

Name	UCM3070 (XH1)	UCM3070 Signal	Dir	MINT Pin BRC for Slot on Utility Card		
				Slot 1	Slot 2	Slot 3
SWGND	Pin 9, 16	GND	-	139	39	59
SWGND	Pin 23, 25	GND	-	140	40	60
Signal 1	Pin 2	TCK TAP 1	Out	141	41	61
Signal 2	Pin 4	TMS TAP 1	Out	142	42	62
Signal 3	Pin 6	TDI TAP 1	In	143	43	63
Signal 4	Pin 8	TDO TAP 1	Out	144	44	64
Signal 5	Pin 10	/TRST TAP 1	Out	145	45	65
Signal 6	Pin 12	TCK TAP 2	Out	146	46	66
Signal 7	Pin 14	TMS TAP 2	Out	147	47	67
Signal 8	Pin 18	TDI TAP 2	In	148	48	68
Signal 9	Pin 20	TDO TAP 2	Out	149	49	69
Signal 10	Pin 22	/TRST TAP 2	Out	150	50	70
Signal 11	Pin 24	PIP 1.0	I/O	151	51	71
Signal 12	Pin 26	PIP 1.1	I/O	152	52	72
Signal 13	Pin 28	PIP 1.2	I/O	153	53	73
Signal 14	Pin 30	PIP 1.3	I/O	154	54	74
Signal 15	Pin 1	PIP 2.0	I/O	155	55	75
Signal 16	Pin 3	PIP 2.1	I/O	156	56	76
Signal 17	Pin 5	PIP 2.2	I/O	157	57	77
Signal 18	Pin 7	PIP 2.3	I/O	158	58	78

Table 1: TAP and PIP signals of the UCM3070 and corresponding MINT Pins on the Keysight Utility Card.

3. Software Features of the UCM3070

Keysight’s BT-Basic in-circuit test software has implemented special commands to call an external device integrated with the Keysight Utility Card. These XD-commands build the software interface between both systems.

UCM3070 receives and executes commands via USB2.0 high speed interface. A DLL is provided which allows the UCM3070 to be controlled by the BT-Basic commands.

4. Physical Dimensions

Here are the UCM3070 dimensions:

Length : 75 mm (2.95")
 Width : 152 mm (6.0")
 Height : 15 mm (0.6")



5. Specifications

The following operating conditions have to be met for the UCM3070:

Symbol	Characteristic	Min	Max	Unit
VDD	Operating voltage	7	18	V
Tstg	Storage temperature	-40	125	°C
Ta	Operating temperature	0	40	°C
	Relative humidity, storage, non-condensing	10	90	%
	Relative humidity, operation, non-condensing	20	85	%

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To order the UCM3070 module, please contact the following vendor directly:



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Germany

www.goepel.com/en/ucm-3070

Phone: +49 (0)3641 6896-0

Fax: +49 (0)3641 6896-944

E-mail: sales@goepel.com

For full technical details on the UCM3070 module, please visit:

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For more information on the Keysight Utility Card, please visit:

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