TestStation II With UltraPin

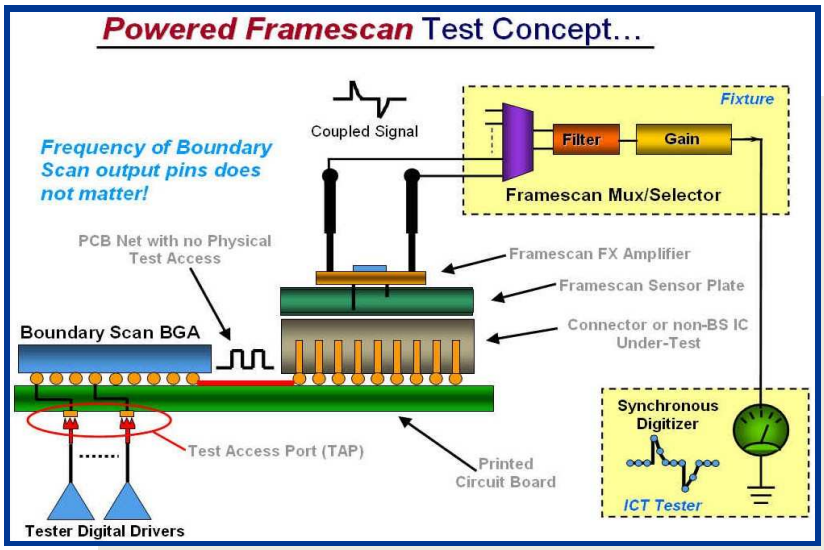
Powered Framescan™ Test Technology

Combined Boundary Scan and Framescan Vectorless Techniques

Key Features:

- *Detects faults on pins that do not have physical test access*
- *Combines Boundary Scan and Framescan Technologies*
- *Automatic test generation and learn modes*
- *Uses existing Framescan FX hardware and tester instruments*
- *Innovative time-domain technique is frequency independent*
- *Best-in-Test Award Finalist*

Test & Measurement World BEST IN TEST 2011 FINALIST



Block diagram of Powered Framescan Technique

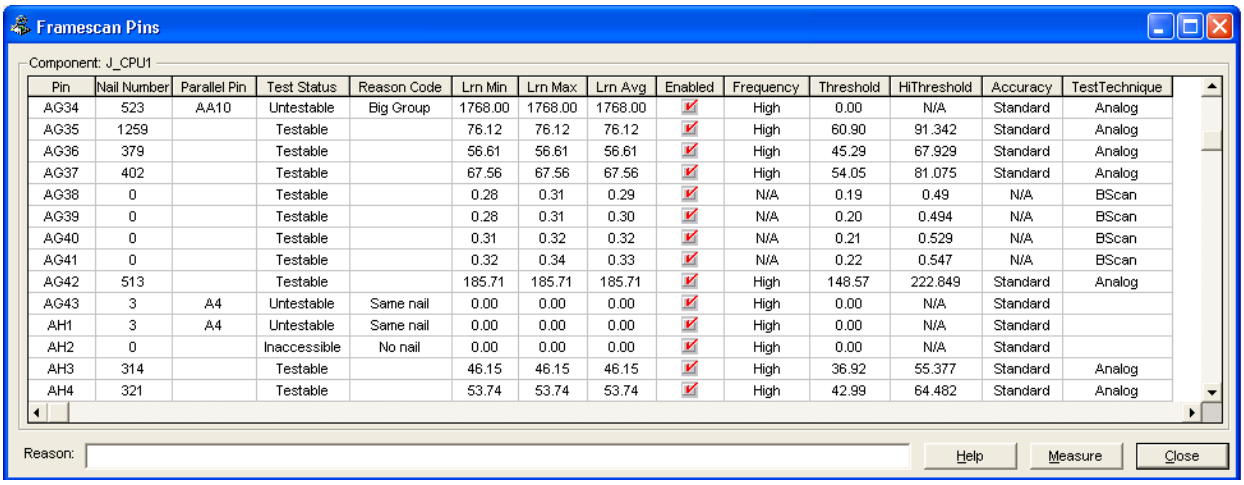
Powered Framescan is an optional component of Teradyne's suite of Framescan™ vectorless test tools. It was developed by Teradyne to help improve the ICT fault coverage of PCB designs that do not have physical test access to some nets due to high density interconnect packages and/or high speed gigabit performance requirements.

The Powered Framescan tool combines boundary scan techniques with the same exact Teradyne Framescan FX multiplexer and amplifier fixture hardware used by the Analog Framescan solution. Instead of sourcing an AC signal to the pin being tested, the Powered Framescan technology powers up the UUT and stimulates the inaccessible pins using an on-board boundary scan device.

The toggling boundary scan output pins get coupled to a Framescan Sensor Plate, amplified by the Framescan FX amplifier, conditioned by the Framescan Selector Board and then digitized by the TestStation's DC voltmeter. The tester's Run-Time Software uses a patented cross-correlation algorithm on the digitized measurement data to eliminate random noise and compare the measured results with those learned from a known good board.

Unlike conventional ICT systems, Teradyne's TestStation systems have synchronized analog and digital instrumentation that can perform coherent mixed signal measurements. This makes it is possible for the Powered Framescan tool to use a time domain measurement technique rather than the traditional frequency domain technique used by Teradyne's Analog Framescan solution and other competitive vectorless test solutions. The time domain measurement method not only makes it possible for Teradyne's Powered Framescan solution to make measurements faster, more importantly it allows the tester to perform accurate and reliable measurements of device pins regardless of the toggle frequency of the boundary scan pins. Because the Powered Framescan solution operates independently of TCK toggle frequencies and boundary scan register lengths it does not place any special restrictions on the UUT design and it does not need the boundary scan devices to support any special instructions outside of the standard 1149.1 instructions.

Finally, the Powered Framescan tool uses the same powerful debug tools and intuitive user interface as the Analog Framescan tool; making it easy for users to extend the capabilities of their vectorless test solutions. Analog and Powered Framescan results are reported in the same Framescan spreadsheet window making it easy to see the combined fault coverage for all your vectorless test techniques. The vectors that are used to control the boundary scan devices are generated automatically and stored in separate DSM and vectorless test program files to simplify debug and test program maintenance activities.



Pin	Nail Number	Parallel Pin	Test Status	Reason Code	Lrn Min	Lrn Max	Lrn Avg	Enabled	Frequency	Threshold	HiThreshold	Accuracy	TestTechnique
AG34	523	AA10	Untestable	Big Group	1768.00	1768.00	1768.00	☑	High	0.00	N/A	Standard	Analog
AG35	1259		Testable		76.12	76.12	76.12	☑	High	60.90	91.342	Standard	Analog
AG36	379		Testable		56.61	56.61	56.61	☑	High	45.29	67.929	Standard	Analog
AG37	402		Testable		67.56	67.56	67.56	☑	High	54.05	81.075	Standard	Analog
AG38	0		Testable		0.28	0.31	0.29	☑	N/A	0.19	0.49	N/A	BScan
AG39	0		Testable		0.28	0.31	0.30	☑	N/A	0.20	0.494	N/A	BScan
AG40	0		Testable		0.31	0.32	0.32	☑	N/A	0.21	0.529	N/A	BScan
AG41	0		Testable		0.32	0.34	0.33	☑	N/A	0.22	0.547	N/A	BScan
AG42	513		Testable		185.71	185.71	185.71	☑	High	148.57	222.849	Standard	Analog
AG43	3	A4	Untestable	Same nail	0.00	0.00	0.00	☑	High	0.00	N/A	Standard	
AH1	3	A4	Untestable	Same nail	0.00	0.00	0.00	☑	High	0.00	N/A	Standard	
AH2	0		Inaccessible	No nail	0.00	0.00	0.00	☑	High	0.00	N/A	Standard	
AH3	314		Testable		46.15	46.15	46.15	☑	High	36.92	55.377	Standard	Analog
AH4	321		Testable		53.74	53.74	53.74	☑	High	42.99	64.482	Standard	Analog

Framescan Pins Main Window allows operators to view the pin coverage information in a spreadsheet window and quickly make changes during debug.

Requirements for Powered Framescan

- Framescan FX Amplifier and Sensor Plate (1 for each device to be tested)
- Framescan FX Multiplexer/Selector Board (1 per fixture)
- Deep Serial Memory (DSM) hardware option
- Fixed power supply option or external power supplies
- Version 6.4.0 or later software for TestStation test systems
- Framescan run-time software license
- Powered Framescan run-time software license

TERADYNE
Because Testing Matters

Contact your Teradyne sales representative for more information or visit www.teradyne.com/atd.

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