

# The PCF650 - PC/104+ Bus Analyzer / Exerciser

## Analyzer

- Capture Bus Activity
- Event Recognition
- Complex Triggering and Filtering
- Time Stamping and Measurement
- State and Waveform Displays

## Exerciser

- Memory, I/O, Config Transfers
- Generate Test Patterns
- Configuration Scanning
- Control Address / Data Width
- Read / Write to a File

## Stimulus

- Fault Injection
- Control Bus Timing
- Hardware Simulation
- Pattern Generation
- Drive any Signal

## Protocol Violation Checker

- Detects >50 Protocol Violations
- Master, Target and General
- Listed in State/Waveform Display
- Used as Trigger / Filter

## Timing Violation Checker

- Checks Unstable Signals
- Setup and Hold Verification
- Glitch Detection

## Performance Analysis

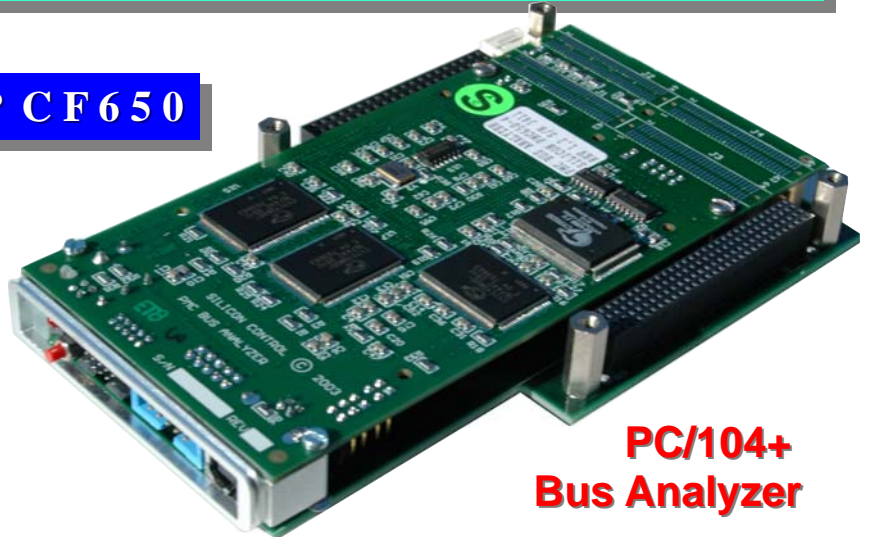
- Bus Utilization
- Transfer Rate
- Latency
- Burst Distribution
- Statistics

## Windows and API Interface

- Analyzed Windows Software
- User programmable API

## Expansion Connector

PCF650



PC/104+  
Bus Analyzer

The PCF650 analyzes and exercises the 32 bit PCI bus on PC/104+ systems running from 0 to 66 Mhz. Over 100 protocol and timing violations are automatically checked and correlated with captured bus activity. System performance measurements include Bus Utilization, Transfer Rates, Latency, and Statistics.

Analyze It! Windows Software

SAMPLE	COMMAND	ADDRESS32	DATA32	TIME(17:0)	DELTA	BUS DOCTOR
-3			33	40ns		FRAME assert...
-2	I/O Wr	00000061	20	227ns		0000
-1				10ns		0000
0	I/O Rd	00000064	AE	53ns		0000
1			1C	120ns		0000
2	I/O Wr	00000064	AE	94ns		0000
3				2.751us		FRAME not ok...
4	Int Ack	00000000	08	11ns		0000
5				643ns		0000
6	I/O Rd	00000078	80	53ns	60.25us	0000
7				351ns		0000
8	I/O Wr	00000020	20	10ns		0000
9				59.17us		0000
10	Int Ack	00000000	08	11ns		0000
11				981ns		0000
12	I/O Rd	00000064	1D	53ns		0000
13						0000

Silicon Control introduces a lower cost analyzer and exerciser for PC/104+ systems. The PCF650 offers many of the same features as our popular PCF850 analyzer without the Compliance Testing, Target Memory, PCI-X capability and Power Zoom. The result is a powerful diagnostic tool for bus analysis—all on a single plug-in card at an affordable price.



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THE LEADERS IN BUS ANALYSIS

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# PCF 650 SPECIFICATIONS

## General Specifications

PCI Compliance:	PCI 2.2
Bus Size:	32 bit
Bus Signal Levels:	5V or 3.3V

## Trace Specifications

Trace Memory:	
PCF650-1	128K by 144 bits
PCF650-2	256K by 144 bits
PCF650-3	512K by 144 bits
PCF650-4	1M by 144 bits
PCF650-5	2M by 144 bits
Sampling Rate:	66 Mhz (max)
Sampling Modes:	System Clock System Clock w/ Address/Data System Clock w/ Transfers On board precision Oscillator (7.5ns to 15us)
Sampled Signals:	AD[31:0], C/BE[7:0], FRAME, DEVSEL, TRDY, IRDY, PAR, REQ, GNT, RST, LOCK, CLK, INTA, INTB, INTC, INTD, PAR64, PERR, SERR, REQ64, ACK64, TDO, TDI, TCK, TMS, TRST, SDONE, SBO, EXT[7:0]
External Inputs:	8 Front Panel Trace/Trigger
External Outputs:	1 Programmable Trigger Output
Triggers:	8 Trigger Conditions each Specifying 100 PMC Signals, 8 External Triggers and Anomaly
Trigger Types:	Single Condition Logical Combination 16 Level Sequencer
Trigger Positions:	0%, 25%, 50%, 75%, 100%
Occurrence Counters:	16 hardware counters 20 bits
Event Counters:	16 hardware counters 20 bits
Time Tag:	7.5 ns to 60 sec.

## Exerciser Specifications

Initiator Bandwidth:	528 MB/s rate
Initiator Bus Width:	64 or 32 bit
Initiator Transfers:	Memory, I/O, Configuration

## Front Panel Interfaces

RS232 Port:	DB9 connector, 110 to 115K Baud (cable included)
USB Port:	Series B connector, 12 MB/s (cable included)
Indicators:	GO LED, User LED
Pushbutton:	Reset Analyzer or System
External Power:	2 Conductor front panel (cable included)
Trigger:	10 pin socket (8 in, 1 out, 1 ground) (cable included)
Fuses:	Main power and External power

## Power Requirements

Operating—5V at 3 Amps max
Standby—5V at 1 Amp max

## Dimensions

(Exceeds standard depth by 2.32 in, to allow a PMC650 product to be adapted)

PCF650—Single PC/104+ Card
Height: 23.3 mm (0.92 in)
Width: 96.0 mm (3.78 in)
Depth: 149.0 mm (5.87 in)

## Ordering Information\*

PCF650-1	PC/104+ Bus Analyzer/Exerciser 128K Trace Buffer
PCF650-2	PC/104+ Bus Analyzer/Exerciser 256K Trace Buffer
PCF650-3	PC/104+ Bus Analyzer/Exerciser 512K Trace Buffer
PCF650-4	PC/104+ Bus Analyzer/Exerciser 1M Trace Buffer
PCF650-5	PC/104+ Bus Analyzer/Exerciser 2M Trace Buffer

\* Includes AnalyzeIt and API software, USB-RS232-trigger and external power cables, documentation and carrying case