VITRA-PPC

PowerPC NEXUS[™] Networked Emulator with Real-time Trace High-Speed NEXUS Emulator, Source Debugger and Real-Time Trace for MPC55xx, MPC56x and MPC555 PowerPC embedded systems





Ashling Vitra-PPC NEXUS Emulator for MPC56x and MPC55xx

System Specification

Source-level debugger:

PathFinder is Ashling's C Source Debugger for PowerPC devices, with multiple user-configurable windows, point-and-click, drag-and-drop, hover help and hover data display, splitter windows, menu-bar, button, hot-key and script (macro)-file controls. PathFinder runs on all 32-bit versions of Windows. PathFinder's Object-Oriented Monitoring and Editing System provides tree-structured "click to expand" access to all memory-areas, register sets, registers and bits of the PowerPC core and co-processors, with a logical and friendly Windows-XP-style display.

PathFinder is the user interface for all Ashling products, including the Ashling Vitra, Genia and Opella Emulators for PowerPC.

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Ashling's Vitra-PPC Emulator is a powerful networked Emulation and Trace system for embedded development with Freescale's PowerPC RISC cores, using the NEXUS 5001[™] on-chip debug interface.

Vitra debugging is completely non-intrusive and requires no target system resources. Together with Ashling's PathFinder source-level debugger, Vitra provides powerful run/stop control of embedded software, with hardware and software breakpoints. Vitra provides fast code download to the target system, and allows control and interrogation of all core-processor and system resources.

Vitra incorporates high speed Ethernet, USB and serial connections to the host PC.

Vitra provides full Instruction Trace and Data Trace using the NEXUS 5001[™] standard on-chip debug interface.

Vitra also supports Freescale's MPC555 automotive/industrial-control microprocessor, using the PowerPC BDM debug interface.

Vitra provides Flash Programming for On-Chip MPC5xx/MPC55xx and external Flash memory.

As an active participant in the Nexus 5001 Forum, Ashling has worked with Freescale to produce Emulator and Real-time Trace systems for Freescale's MPC55xx, MPC56x and MPC555 automotive microprocessor families, the first microprocessors to incorporate the NEXUS 5001[™] Global Embedded Processor Debug Interface.

www.ashling.com

Vitra Emulator

High-Speed Emulator, Source-Level Debugger and Real Time Trace for PowerPC embedded systems

Trigger Events System:

On-chip PowerPC trigger resources are complemented with Vitra triggers, including maskable trace port data comparators, counters and sequencers. External trigger inputs and outputs. Triggers can be specified symbolically and can be set on code execution or data access.

Compiler support:

Supports all popular PowerPC C/C++ compilers, including GNU, Green Hills Systems, ARC MetaWare, Freescale Metrowerks, Altium-Tasking, Wind River Systems (Diab Data) and all other ELF-DWARF compliant compilers.

Host:

PC with Windows-XP/2000/Me/9x/NT. Ethernet, USB and RS232 serial connections to host.

Script language:

Powerful macro language to control, monitor and log all Emulator functions.

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				s: 1561 Start 🖃 🗖 🔀	Trace Timi			rames: 17	Start T	rigs: 0 St	op Trigs	: 0)		
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00000229	< 912.0us	->	3F8430	WriteToDevice -	init_hardt			0.4us		0.4us		0.4us		0.4us
00000230	< 917.6us	->	3F8474	FindDeviceADDR	copy_ron_s	ection		10.8us		10.8us		10.8us		64.8us
00000231	918.4us		3F84A0	FindDeviceADDR	fill_mem			166.4us		4.0us		65.5us		196.4u
00000232	924.8us		3F8470	WriteToDevice	nenset			174.0us		11.6us		73.lus		219.2u
00000234	< 932.4us	->	3F84A4	DisplayMessage	init_bss_s	ection		181.6us 338.0us		41.2us 338.0us	<u> </u>] 111.4us 338.0us		222.8u
00000235	< 933.6us	->	3 F 8518	ClearDisplay	init_data InitialiseTr					21.2us	-	338.0us		
00000286	1.1452ns	<-	3 F 853C	ClearDisplay	ClearDisplay		aging	262 Ous		21.2us 212 8us] 21.2us] 214.0us		3 21.2us
00000289	< 1.1568ms	->	3F88A4	stropy	rand	·		5.6us		5.2us] 5.3us		1.9244
00000296	1.1928ns	<-	3 F 8958	strcpy	GetNextConms	md		41.248		37.2us	-	40.5us		4.3348
00000297	1.1968ms	<-	3F8514	DisplayMessage	FindDeviceAL			6 4115		6 045	<u> </u>	16 2us		254 00
00000299	< 1.2192ms	->	3F8644	TransmitTraceMessage	WriteToDevic			17.6us		17.2us	_	17.3us		277.24
00000300	< 1.2228ms	->	3F8168	nencpy	strepy			40.4us		36.4us	-	38.4us		1.6148
00000381	1.4324ns		3F8190	nencpy	DisplayMessa	ige		17.2836ms	s 📻	218.0us		923.4us		38.780
00000382	1.4440ns		3F86F0	TransmitTraceMessage	nencpy			213.2us		213.2us		213.2us		8.7412
00000385	< 1.4536ns	->	3F8540	GetNextCommand	TransmitTrac	eMessag	e	244.8us		244.8us		244.8us		9.7920
00000386	< 1.4588ms	->	378884	rand	ReadFromDevi	.ce		77.2us		13.6us		36.7us		954.0u
00000386	1.4588ns	<-	3F88A0	rand	J									
00000392	< 1.4776ms	->	3 F 8884	rand	Source									
00000392	1.4776ns	<-	3F88A0	rand	Source									
00000394	< 1.4844ms	->	3F8884	rand	Rddr	Line	CC BP	PC Source	<c :="" \pe<="" td=""><td>PPC\EXA</td><td>PLES\M</td><td>TRO\HPC5</td><td>ex/coni</td><td>ROLEACON</td></c>	PPC\EXA	PLES\M	TRO\HPC5	ex/coni	ROLEACON
00000394	1.4844ns		3F88A0	rand		89		}						
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00000398	< 1.4984ms	->-	3F8540	GetNextCommand		91		unsign	ed int	WriteToD	evice	unsigned	char u	Command
00000399	< 1.5036ms	->	378884	rand	00378430	92	•	(
00000399	1.5036ns	<-	3F88A0	rand		93		uns	igned i	nt uiDet	iceAdr;			
00000405	< 1.5224ms	->	3 F 8884	rand		94								
00000405	1.5224ns	<-	3F88A0	rand	003F8444	95		Fin.	dDevice	ADDR (uc	Command	l, GuiDevi	iceAdr)	;
00000407	< 1.5292ms	->	3F8884	rand		96		1 1	Vrite t	o 'uiDes	iceAdr	*/		
00000407	1.5292ms		3F88A0	rand	003F844C	97	•	pty	Command	Data-≻iD	eviceNu	ua = 0,	;	
00000408	1.5340ms	<-	3F8604	GetNextCommand	003F8454	98	•	pty	Command	Data-≻uo	Control	Char = ')	e 2	
00000411	< 1.5432ms	->-	3F8540	GetNextCommand		99								
00000412	< 1.5484ms	->	378884	rand	003F845C	100	•	ret	urn NO	ERROR;				
00000412	1.5484ns	<-	3F88A0	rand		101)	-					
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PathFinder provides source-level debugging for PowerPC systems, with mouse, command-line, accelerator-key and button-bar controls

VITRA EMULATOR SPECIFICATION

- Run/stop control of target application including go, halt, step over, step into and step out of.
- Full expression-handling for all Variables.
- Display/read/write of target system memory, peripheral registers and IO space.
- Simultaneous display of source and assembly code.
- High-speed application code download.

- Real-Time Code Trace, Data Trace and Triggering system
 Support for all on-chip hardware breakpoints; unlimited
- Support for all on-chip hardware breakpoints; unlimited software breakpoints.
- Automatic sensing of low voltage target systems.
- Target Reset control and Remote Reset detect.
- PathFinder Flash Programming Utilities Package

Real-Time Trace: Vitra traces instruction execution and data accesses at target system clock speeds up to 200MHz, for PowerPCbased embedded systems with the NEXUS-standard on-chip debug and trace interface. PathFinder shows traced data as bus trace (data access), symbolic disassembly or source code with time-stamp. Trace buffer is 128-bits x 512K Frames.

Target connection: Standard NEXUS 50-pin debug and trace connector, Robust NEXUS 51-pin connector, or 10-pin BDM connector for MPC555. 4 auxiliary control outputs to target and 4 inputs, all under user control from PathFinder. Supports 1.8V, 2.5V, 3.3V and 5V targets. Optional Extended Trigger and Trace Probe captures up to twelve user signals in Logic-Analyzer mode, together with three external trigger inputs to qualify trace capture and two trigger output signals

Device Support: All Freescale PowerPC devices with NEXUS on-chip debug interface, including: MPC5533, MPC5534, MPC5553, MPC5554, MPC5561, MPC5565, MPC5566, MPC5567 MPC561, MPC562, MPC563, MPC564, MPC565, MPC566 and Freescale MPC555 with BDM debug interface.

ORDER CODES

Product	Order Code	Product	Order Code		
Vitra Emulator with 512K x 128-bit trace	VITRA-PPC-T512K	50-way NEXUS Target Probe Assembly for MPC56x	TPA-PPC-NEXUS-50		
PathFinder Source-Level Debugger for MPC56x	PF-PPC	40/50-way adapter for TPA-PPC-NEXUS-50	TB-PPC-NEXUS-40/50		
PathFinder Source-Level Debugger for MPC55xx	PF-MPC5500	NEXUS R51A 51-way Robust debug and trace connector for MPC56x	TPA-PPC-MD-51		
Extended Trigger/Trace Target Probe Assembly	TPA-TRIG-TRACE	TPA-MPC5500-M38C			
General Purpose User I/O Cable	TPA-GENIO	NEXUS R51C 51-way Robust debug and trace connector for MPC55xx	TPA-MPC5500-MD-51		
BDM 10-way IDC Target Probe Assembly for MPC56x	TPA-PPC-BDM-10	14-way NEXUS JTAG debug cable for Motorola MPC55xx	TPA-MPC5500-JTAG-14		

Ashling Microsystems Ltd. is certified to I.S. EN ISO 9001:2000, NSAI Registration No. 19.09069.

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Ashling Microsystems Ltd reserves the right to alter product specifications at any time and without notice

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