



## PXA320 EVK

Component name		PX320 EVK	
Category (IP/ Reusable)	IP	Component type (HW/Product )	HW Evaluation Board
Core	XScale Core PXA320	Supporting OS	Linux, WinCE
Applications / applicable products	Hardware development Board/Reference Design/Product Development		
Market/ industries applicable	Mobile and Multimedia Applications		
Product Description	<p>This project will explore the hardware and software features of the Marvell multimedia processor PXA-320. The Marvell PXA 320 processor provides industry-leading multimedia performance, low-power capabilities, and rich peripheral integration. The processor includes Intel Wireless MMX 2 technology, enabling high performance, low power multimedia acceleration with a general purpose instruction set. Intel quick capture technology provides a flexible and powerful camera interface for capturing digital still and video images. The PXA320 processor redefines scalability by operating up to 809MHz, providing high performance for the many demanding mobile applications.</p>		
Technical specifications	<ul style="list-style-type: none"><li>• Processor<ul style="list-style-type: none"><li>– XScale Core PXA320 with Intel Wireless MMX™ technology with 806 MHz</li></ul></li><li>• Memory<ul style="list-style-type: none"><li>– 64MB DDR SDRAM</li><li>– 64MB NOR Flash and 128MB NAND Flash</li></ul></li></ul>		
Features /benefits	<ul style="list-style-type: none"><li>• SD/SDIO: SD Memory Card (Version 1.1), SDIO Card (Version 1.0)</li><li>• Data Flash: CF card</li><li>• RTC: Battery Backed RTC</li><li>• Display: 640x480 TFT LCD.</li><li>• Touch screen: Touch screen controller (Resistive)</li><li>• Keypad: 5x5 keypad matrix, 1 Rotary encoder, 4 direct keys</li><li>• Audio: AC '97 Audio CODEC with Headphone/Speaker Amplifier, Mic. input.</li><li>• USB: USB 1.1 Host, USB2.0 Client, USB OTG</li><li>• Ethernet: 10/100 Ethernet</li><li>• UART: One Full function (modem) UART, One Bluetooth UART</li><li>• IrDA: On board IrDA transceiver</li><li>• Quick Capture I/F and USIM I/F Expansion header</li></ul>		
Readiness	Schematic design in progress Roadmap – Readiness by Q2 2010.		



### AM3505 EVK (OMAP 3505)

<b>Component name</b>	<b>AM3505 EVK (OMAP 3505)</b>		
<b>Category (IP/ Reusable)</b>	IP	<b>Component type (HW/Product )</b>	HW Evaluation Board
<b>Core</b>	AM3505	<b>Supporting OS</b>	
<b>Applications / applicable products</b>	Hardware development Board/Reference Design/Product Development		
<b>Market/ industries applicable</b>	Mobile , Multimedia and Industrial Applications		
<b>Product Description</b>	<p>The AM3505- EVK Board is designed for evaluating the functionality of the AM3505 Processor and for application development with access to the major peripheral set supported by the AM3505 devices. The AM3505- EVK Board consists of AM3505 Processor Core Module and an Application board. The AM3505 Processor Core Module includes Processor, Memory and few peripherals chips. Application board includes the rest of peripheral chips and terminal connectors required for user interfaces. The module shall be plugged into application board by using Board-to-Board expansion connectors.</p>		
<b>Technical specifications</b>	<ul style="list-style-type: none"> <li>• Processor <ul style="list-style-type: none"> <li>TI's Application Processor AM3505</li> </ul> </li> <li>• Memory <ul style="list-style-type: none"> <li>– 512MB DDR2 SDRAM</li> <li>– 128MB NAND Flash</li> <li>– 64KB Serial EEPROM</li> </ul> </li> </ul>		
<b>Features /benefits</b>	<ul style="list-style-type: none"> <li>• MMC/SD Card Slot</li> <li>• Serial ATA (SATA)</li> <li>• Compact Flash Interface</li> <li>• RTC with Battery Back up</li> <li>• Onboard Temperature Sensor</li> <li>• Two High Speed USB Host ports</li> <li>• One USB OTG port</li> <li>• One USB HUB Controller interface with Seven USB Host ports</li> <li>• Three 10/100 Base-T Ethernet ports</li> <li>• Two RS232 ports</li> <li>• Two RS485 ports</li> <li>• One full function UART Port</li> <li>• Three I2C bus</li> <li>• One 1-Wire interface</li> <li>• CAN Interface</li> <li>• Four PWMs</li> <li>• GPIOs in expansion connectors</li> </ul>		
<b>Readiness</b>	<p>Schematic design in progress. Roadmap – Readiness by Q1 2010.</p>		



# Products



## Secure Phone

Component name	Secure Phone		
Category (IP/ Reusable)	IP	Component type (HW/SW/product etc)	Product
HW Platform	H8S/2128	SW Platform /OS	Firmware
Applications / applicable products	Secure communication using portable adapters		
Market/ industries applicable	Defense		
Product Description	A portable battery operated telephone adapter providing secure communication with status indication. Voice is digitized and compressed before Triple-DES encryption and sent out through line using single chip modem. The received data is also processed in a similar way.		
Technical specifications			
Features /benefits	Portable device for secure communication		
Other relevant details	Done as internal project. Developed few proto units. Demos had limited success.		
Readiness	Available		



## ThinClient

Component name	ThinClient		
Category (IP/ Reusable)	IP	Component type (HW/SW/product etc)	Product
HW Platform	MIPS	SW Platform /OS	Linux 2.4
Applications / applicable products	Linux based Diskless computer to reduce Total Cost of Ownership		
Market/ industries applicable			
Product Description	Linux based Diskless computer		
Technical specifications			
Features /benefits	Storage and applications reside in central server. Data security and application license managing becomes easy as it can be done on the server. The video and audio can be redirected to ThinClient using applications like rdesktop, vnc		
Other relevant details	Converted a reference design into production quality hardware. To do: BoM cost optimizations, May have to consider adding Citrix support.		
Readiness	Available		



# Embedded Tools



## Opella-XDS560

Component name	Opella-XDS560		
Category (IP/ Reusable)	IP	Component type (HW/SW/product etc)	Product
HW Platform	NA	SW Platform /OS	NA.
Applications / applicable products	JTAG based Debug Probe which can be used for embedded software debugging on Texas Instrument DSP platforms.		
Market/ industries applicable	Embedded debug tools.		
Product Description	Ultra-high-speed Debug Probe designed to work with TI's CCS IDE. Supports all CCS debug features including program download, breakpoints and source-level program control.		
Technical specifications	Supports all TI families including OMAP, DaVinci, TMS320C6000, TMS320C5000, TMS320C2000 and TMS470. Target JTAG clock rates from 500kHz to 50MHz with full support for adaptive clocking of debug data from target. Wide target voltage range: 0.5V to 5.0V High-speed Real-Time Data eXchange (RTDX) support. Real-time, non-intrusive breakpoints and event triggering. Code download speeds at over 500KB/s. 14-pin and 20-pin (Compact TI) JTAG target connectors supported. Full support for TI's DBGJTAG low-level JTAG test utility (supplied with CCS).		
Features /benefits	Fast, easy-to-install USB2.0 High-Speed Interface. Less costly compared to other competent products. Better customer support.		
Other relevant details	Product evaluation was done by TI-Texas, TI-Bangalore and Mistral-Bangalore.		
Readiness	Started manufacturing at NPE.		



## Opella-XDS100v2

<b>Component name</b>	Opella-XDS100v2		
<b>Category (IP/ Reusable)</b>	IP	<b>Component type (HW/SW/product etc)</b>	Product
<b>HW Platform</b>	NA	<b>SW Platform /OS</b>	NA
<b>Applications / applicable products</b>	JTAG based Debug Probe which can be used for embedded software debugging on Texas Instrument DSP platforms.		
<b>Market/ industries applicable</b>	Embedded debug tools.		
<b>Product Description</b>	XDS100 Debug Probe is an ultra-low-cost JTAG Debug Probe used for embedded software debugging on Texas Instrument DSP platforms.		
<b>Technical specifications</b>	<p>Debug features (<u>Emulation Connect/Disconnect</u>, Read/Write memory, Read registers, Load program, Run, Halt, Step, Software and Hardware <u>Breakpoint</u> support, <u>Real-Time Mode</u>)</p> <p>Compatible with Code Composer Studio™.</p> <p>Support for targets with 1.8v and 3.3v IO voltages.</p> <p>Support for "JTAG reset"/"wait-in-reset" boot-modes using the two EMU pins sampled by the nTRST pin.</p> <p>Support for "Power-on reset" boot-modes using the two EMU pins sampled by the TVD pin.</p> <p>Support for the configuration of the EMU pin features through <u>Code Composer Studio™ Setup "connection properties"</u> dialogs similar to those for the <u>XDS560 Rev-D</u> cable.</p> <p>Support for "target power-loss detection" via the TVD pin even when <u>Code Composer Studio™</u> is not running, and applying boot-modes at <u>Code Composer Studio™</u> start-up.</p> <p>Support for the following processor cores: TMS320C28x, TMS320C54x, TMS320C55x, TMS320C64x+, TMS320C674x, ARM 9, ARM Cortex R4, and ARM Cortex A8.</p>		
<b>Features /benefits</b>	Ultra low cost		
<b>Other relevant details</b>	Design based on TI reference design.		
<b>Readiness</b>	Development in progress.		



## Opella-XD-ARM

<b>Component name</b>	<b>Opella-XD-ARM</b>		
<b>Category (IP/ Reusable)</b>	IP	<b>Component type (HW/SW/product etc)</b>	Product
<b>HW Platform</b>	NA	<b>SW Platform /OS</b>	NA
<b>Applications / applicable products</b>	JTAG based Debug Probe used for embedded software debugging on ARM RISC cores.		
<b>Market/ industries applicable</b>	Embedded debug tools.		
<b>Product Description</b>	Ultra-high-speed Debug Probe designed to work with Ashling’s Source-level Debugger (PathFinder) for ARM-core devices. Ashling ARM drivers supplied with Opella-XD-ARM allow it to be used with third-party debuggers such as ARM’s RealView, Keil uVision and IAR’s Embedded Workbench.		
<b>Technical specifications</b>	<p>High-speed USB2.0 (480Mb/s) interface to host PC or Linux workstation.            Fine-grained adjustment of JTAG clock frequency from 1 kHz to 100MHz.            Supports RTCK adaptive clocking of debug data from target.            Configurable Target-Reset and test-Port-Reset, under full user control.            Supports target operating voltages from 0.9V to 3.6V. Opella-XD detects and automatically configures for the appropriate target voltage.            “Hot-plug” support; allows connection to a running target without resetting or halting.            Fully powered by USB interface; no external power supply needed.            Support for all on-chip hardware breakpoints; unlimited number of software breakpoints.</p>		
<b>Features /benefits</b>	<p>Accelerates the entire embedded debug process: ultra-fast installation, code download and flash programming saves time at every code rebuild.            Long-term investment: works with all popular target architectures and compilers.            Helps with the most difficult debugging tasks: hardware bring-up, operating-system booting, post-mortem debugging.            Future-proof: works with latest hardware-debug protocols, all popular host operating-systems.            Compact, easy-to-install target probe cables support all popular debug interfaces.            Powerful software package includes PathFinder debugger and drivers thus ensuring compatibility with a wide range of compilers and 3rd party debuggers.</p>		
<b>Other relevant details</b>	<p>All ARM™ cores are supported including ARM7, ARM9, ARM9E and Cortex devices. In addition, Opella-XD supports devices from the following ARM™ licensees: Atmel, Luminary Micro, NXP, OKI, Samsung, Sharp, Sony, ST and TI. Other devices are continuously being added, hence, please contact Ashling for latest support information.</p>		
<b>Readiness</b>	Manufacturing at NPE.		



# Opella-XD-MIPS

<b>Component name</b>	<b>Opella-XD-MIPS</b>		
<b>Category (IP/ Reusable)</b>	IP	<b>Component type (HW/SW/product etc)</b>	Product
<b>HW Platform</b>	NA	<b>SW Platform /OS</b>	NA
<b>Applications / applicable products</b>	JTAG based Debug Probe used for embedded software debugging on MIPS RISC cores.		
<b>Market/ industries applicable</b>	Embedded debug tools.		
<b>Product Description</b>	Ultra-high-speed Debug Probe designed to work with Ashling’s Source-level Debugger (PathFinder) for MIPS-core devices. Ashling’s GDB-Server-MIPS software package allows it to be used with the GNU GDB open-source debugger.		
<b>Technical specifications</b>	<p>High-speed USB2.0 (480Mb/s) interface to host PC or Linux workstation.            Target EJTAG clock rates up to 100MHz.            Autoconditioning for fast EJTAG clock frequencies.            Sustained code download to target at over 3MB/s (using 100MHz EJTAG clock).            Supports all MIPS™ hardware-debug standards: EJTAG 4.10, 3.10, 2.6x, 2.5x, 2.0x and 1.5x.            14-way or 20-way IDC target EJTAG connectors.            Configurable Target-Reset and Test-Port-Reset, under full user control.            Fine-grained adjustment of JTAG clock frequency from 1KHz to 100MHz.            Supports target operating voltages from 0.9V to 3.6V. Opella-XD detects and automatically configures for the appropriate target voltage.            Supports RTCK adaptive clocking of debug data from target (EJTAG 4.10).            “Hot-plug” support; allows connection to a running target without resetting or halting.            Fully powered by USB interface; no external power-supply needed.            Support for all on-chip hardware breakpoints; unlimited number of software breakpoints.            Big-endian and little-endian target architectures supported.            Full support for MIPS16™/MIPS16e™ code compression.</p>		
<b>Features /benefits</b>	<p>Accelerates the entire embedded-hardware debug process: ultra-fast installation, code download and flash programming saves time at every code rebuild.            Instantly autoconfigures to target system.            Long-term investment: works with all popular target architectures and compilers.            Helps with the most difficult debugging tasks: hardware bring-up, operating-system booting, post-mortem debugging.            Future-proof: works with latest hardware-debug protocols, all popular host operating-systems.            Compact, easy-to-install target probe cables support all popular debug interfaces.</p>		
<b>Other relevant details</b>			
<b>Readiness</b>	Manufacturing at NPE.		



## Opella-XD-ARC

Component name	Opella-XD-ARC		
Category (IP/ Reusable)	IP	Component type (HW/SW/product etc)	Product
HW Platform	NA	SW Platform /OS	NA
Applications / applicable products	JTAG based Debug Probe used for embedded development with ARC International's ARC™ configurable RISC cores.		
Market/ industries applicable	Embedded debug tools.		
Product Description	JTAG Debug Probe developed in cooperation with ARC International plc, integrates with ARC's MetaWare or GNU GDB Debuggers under Windows™ or Linux based hosts.		
Technical specifications	<p>High-speed USB2.0 (480Mb/s) interface to host PC. Target JTAG clock rates up to 100MHz. Auto-conditioning for fast JTAG clock frequencies. Configurable Target-Reset and Test-Port-Reset, under full user control. Fine-grained adjustment of JTAG clock frequency from 1KHz to 100MHz. Supports target operating voltages from 0.9V to 3.6V. Opella-XD detects and automatically configures for the appropriate target voltage. "Hot-plug" support; allows connection to a running target without resetting or halting. Fully powered by USB interface; no external power-supply needed. Display/read/write of target system memory and peripheral registers. Support for all on-chip hardware breakpoints; unlimited software breakpoints. Target Reset control and Remote Reset detect. Run/stop control of target application including go, halt, step over, step into and step out of. Operates with ARC's MetaWare or GNU. GDB Debuggers under Windows™ or Linux based hosts. Support for Multi-core debug. Support for multiple Opella connected to the same PC (this supports Multi-core systems where each core has a unique JTAG interface). ARCangel™ Development Board System FPGA programming support; allows easy configuration using an Opella connection between your host PC and ARCangel™ All ARctangent-A4, ARctangent-A5, ARC 600, ARC 700, Energy Pro EP20 and EP30 cores are supported.</p>		
Features /benefits	Different architecture support is realized by providing customized Test Port Access cables.		
Other relevant details			
Readiness	Manufacturing at NPE.		



## PathFinder

Component name	PathFinder		
Category (IP/ Reusable)	IP	Component type (HW/SW/product etc)	Product
HW Platform	X86PC	SW Platform /OS	Windows
Applications / applicable products	Source-Level Debugger for Embedded Software Development.		
Market/ industries applicable	Embedded debug tools.		
Product Description	Ashling's PathFinder is a source level debugger which runs on all 32-bit versions of Windows. The highly modular PathFinder debugger can be easily configured to support different targets including Emulators, Evaluation boards, On-chip Debug Interfaces and Instruction –Set Simulation Models. In addition, PathFinder supports simultaneous debugging of both Multi-core systems (System on Chip) and Co-processors.		
Technical specifications	Supports all popular C compilers, including Cosmic, Diab Data (Wind River), Green Hills, GNU, High-tec, IAR, Keil, MetaWare, Metroworks and Tasking. Support for all standard industry file formats (object formats) including COFF, DWARF, ELF, IEEE695 and OMF. Full C and Assembler Source Level debug support. Full C expression handling support. Full Multi-core and Co-processor debugging support.		
Features /benefits	Variables that have changed since the previous halt are shown in Red. Full scope is shown for all variables (in this case all variables are local to the function WriteToDevice() in the module controlr). Automatic update and synchronization of all windows after halt from program execution . Code Browser window allows rapid browsing of loaded program, showing all modules and functions. Full run-time control features including: single step, step over, step into, step out of (current function), go and halt. Support for software and hardware breakpoints and watchpoints. Windows for on-chip RAM, external data memory, SFRs, CPU status and Co-processor status.		
Other relevant details			
Readiness	Available.		



## PathFinder-XD

Component name	PathFinder-XD		
Category (IP/ Reusable)	IP	Component type (HW/SW/product etc)	Product
HW Platform	X86PC	SW Platform /OS	Windows/Linux
Applications / applicable products	Source-Level Debugger for Embedded Software Development.		
Market/ industries applicable	Embedded debug tools.		
Product Description	Ashling's next generation of PathFinder debugger based on Eclipse framework.		
Technical specifications	Support for ARM7, ARM9, ARM11 and Cortex cores. Support for MIPS & PowerPC architectures. Full C++ debug support. Full Embedded Linux debug support including stop mode, run-mode and support for kernel, application, driver, module, library and thread debugging. Support for project-less debugging. Direct program load support. No pre-processing required. Cross platform (Windows/Linux). Support for flash programming. Supports Trace, trigger, code-coverage and performance analysis. Supports DSF framework.		
Features /benefits	An open-source, cross platform development environment. An extensible architecture via plug-in development. An attractive modern UI. Existing open-source C/C++ implementations based on the GNU tool chain.		
Other relevant details	Specific versions of PathFinder-XD to support different targets like ARM, MIPS and PowerPC .		
Readiness	Development in Progress		



## Vitra

Component name	Vitra		
Category (IP/ Reusable)	IP	Component type (HW/SW/product etc)	Product
HW Platform	NA	SW Platform /OS	NA
Applications / applicable products	Universal Emulator Platform for 32-bit RISC Embedded Microprocessors.		
Market/ industries applicable	Embedded debug tools.		
Product Description	Vitra is a powerful networked emulator with trace. It provides a real-time Trace Display, time-stamped and back-annotated with the user's source code.		
Technical specifications	Devices supported – MPC53x, MPC555, MPC56x, ARM7, ARM9, TriCore, MIPS,ARctangent. Host interface – Ethernet, USB and RS232		
Features /benefits	If Trace functionality is not required, Trace module can be removed reducing the cost.		
Other relevant details	Advanced features are supported in the new product version.		
Readiness	Available.		



# Vitra-XD

<b>Component name</b>	<b>Vitra-XD</b>		
<b>Category (IP/ Reusable)</b>	IP	<b>Component type (HW/SW/product etc)</b>	Product
<b>HW Platform</b>	NA	<b>SW Platform /OS</b>	NA
<b>Applications / applicable products</b>	Universal Emulator Platform for 32-bit RISC Embedded Microprocessors.		
<b>Market/ industries applicable</b>	Embedded debug tools.		
<b>Product Description</b>	Vitra-XD is the next generation of Ashling's emulator platform.		
<b>Technical specifications</b>	<p>High-speed USB2.0 PC and 1Gbit Ethernet interfaces.            Supports JTAG speeds of up to 100MHz (3MB/s + code download).            Trace capture data rates up to 800MHz.            Up to 4GB trace buffer size.            Code coverage and performance analysis.            High-speed transfer to host based hard-disk for longer trace runs (needed for code coverage and performance analysis).            0.9v to 3.6v target voltage support.            Debug support via PathFinder-XD.            Broad device support            Support for ARM CoreSight multi-core debug features including:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> sharing of a single JTAG connection between multiple-cores</li> <li><input type="checkbox"/> cross-triggering with synchronous breakpoint support</li> <li><input type="checkbox"/> debug via JTAG and serial-wire</li> <li><input type="checkbox"/> multi-core trace</li> <li><input type="checkbox"/> embedded trace buffer (on-chip trace)               <ul style="list-style-type: none"> <li>o support for all ARM9, ARM11 and Cortex cores</li> <li>o support for all ARM ETM implementations including trace port widths of 8 and 16</li> </ul> </li> </ul> <p>Support for serial Giga-bit trace (ARM HSSTP).</p>		
<b>Features /benefits</b>	Superior features		
<b>Other relevant details</b>			
<b>Readiness</b>	Development in Progress		