N a t i o n a l   S e m i c o n d u c t o r

COP8 Tools Overview

National is engaged with an international community of independent 3rd party vendors who provide hardware and software development tool support. Through National's interaction and guidance, these tools cooperate to form a choice of tools that fits each developer's needs.

This section provides a summary of the tool and development kits currently available. Up-to-date information, selection guides, free tools, demos, updates, and purchase information can be obtained at our web site at: www.national.com/cop8.

SUMMARY OF TOOLS

COP8 Evaluation Software and Reference Designs

*   **COP8–NSEVAL:** Software Evaluation package for Windows. A fully integrated evaluation environment for COP8. Includes WCOP8 IDE evaluation version (Integrated Development Environment), COP8-NSASM (Full COP8 Assembler), COP8-MLSIM (COP8 Instruction Level Simulator), COP8C Compiler Demo, DriveWay™ COP8 Device-Driver-Builder Demo, Manuals, Applications Software, and other COP8 technical information.

*   **COP8–REF-xx:** Reference Designs for COP8 Families. Realtime hardware environment with a variety of functions for demonstrating the various capabilities and features of specific COP8 device families. Run Win 95 demo reference software and exercise specific device capabilities.

COP8 Starter Kits and Hardware Target Solutions

*   **COP8-EVAL-xxx:** A variety of Multifunction Evaluation, Design Test, and Target Boards for COP8 Families. Realtime target design environments with a selection of peripherals and features including multi I/O, LCD display, keyboard, A/D, D/A, EEPROM, USART, LEDs, and bread-board area. Quickly design, test, and implement a custom target system (some target boards are stand-alone, and ready for mounting into a standard enclosure), or just evaluate and test your code.

COP8 Software Development Languages and Integrated Environments

*   **COP8-NSDEV:** National's COP8 Software Development package for Windows on CD. A fully Integrated Development Environment for COP8. Includes a fully licensed WCOP8 IDE, COP8-NSASM. Plus Manuals, Applications Software, and other COP8 technical information.

*   **COP8C:** ByteCraft - C Cross-Compiler and Code Development System. Includes BCLIDE (Integrated Development Environment) for Win32, editor, optimizing C Cross-Compiler, macro cross assembler, BC-Linker, and MetaLinktools support. (DOS/SUN versions available.)

*   **EWCOP8, EWCOP8-M, EWCOP8-BL:** IAR - ANSI C-Compiler and Embedded Workbench. (M version includes MetaLink debugger support) (BL version: 4k code limit; no FP). A fully integrated Win32 IDE, ANSI C-Compiler, macro assembler, editor, linker, librarian, and C-Spy high-level simulator/debugger.

COP8 Development Productivity Tools

*   **DriveWay-COP8:** Aisys Corporation - COP8 Peripherals Code Generation tool. Automatically generates tested and documented C or Assembly source code modules containing I/O drivers and interrupt handlers for each on-chip peripheral. Application specific code can be inserted for customization using the integrated editor.

*   **COP8-UTILS:** COP8 assembly code examples, device drivers, and utilities to speed up code development. (Included with COP8-NSDEV and COP8-NSEVAL.)

COP8 Hardware Debug Tools

*   **COP8-EM-xx:** Metalink COP8 Emulation Module for OTP/ROM COP8 Families. Windows based development and real-time in-circuit emulation tool, with 100 frame trace, 32k s/w breaks, Enhanced User Interface, MetaLink Debugger. Includes COP8-NSDEV, power supply, DIP emulation cables.

*   **COP8-DM-xx:** Metalink COP8 Debug Module for OTP/ROM COP8 Families. Windows based development and real-time in-circuit emulation tool, with 100 frame trace, 32k s/w breaks, Basic User Interface, MetaLink Debugger, and COP8 OTP Programmer with sockets. Includes COP8-NSDEV, power supply, DIP and/or SMD emulation cables and adapters.

*   **COP8-IM:** MetaLink iceMASTER® for OTP/ROM COP8 devices. Windows based, full featured real-time in-circuit emulator, with 4k trace, 32k s/w breaks, and MetaLink Windows Debugger. Includes COP8-NSDEV and power supply. Package-specific probes and surface mount adaptors are ordered separately. (Add COP8-PM and adapters for OTP programming.)

COP8 Development and OTP Programming Tools

*   **COP8-PM:** COP8 Development Programming Module. Windows programming tool for COP8 OTP/Flash Families. Includes 40 DIP programming socket, control software, RS232 cable, and power supply. (Programming adapters are extra.)

*   **Development:** Metalink's Debug Module includes development device programming capability for COP8 devices. Many other third-party programmers are approved for development and engineering use.

*   **Production:** Third-party programmers and automatic handling equipment cover needs from engineering prototype and pilot production, to full production environments.

*   **Factory Programming:** Factory programming available for high-volume requirements.

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COP8SG Family Tools Selection

TOOLS ORDERING NUMBERS FOR THE COP8SGx FAMILY DEVICES

Click on the highlighted links for product details and ordering.

Vendo	Tools/Details	Order Number/Buy	Cost	Notes
National	COP8-NSEVAL	COP8-NSEVAL	VL	Order from web site.
	COP8-REF	COP8-REF-SGR	L	Order from web site.
	COP8-EVAL	COP8-EVAL-COB1	VL	Order from web site
	COP8-NSDEV	COP8-NSDEV	VL	Included in EM and DM. Order CD from web site
	COP8-EM	COP8-EM-SG	M	Included p/s, 28/40 pin DIP target cable, manuals, software, and startup target board
	EM Target Cables and Converters	COP8-EMC-44P	VL	44 PLCC Target Cable
		COP8-EMC-28CSP	L	28 CSP Target Cable
		COP8-EMA-xxSO	L	DIP to SOIC Cable Converter
		COP8-EMA-44QFP	L	44 pin PLCC to 44 QFP Cable Converter
	Development Devices	COP8SGR7	VL	32k Eraseable devices in 28/40DIP and 44PLCC
	COP8-PM	COP8-PM-00	L	Included p/s, manuals, software, 16/20/28/40 DIP/SO and 44 PLCC programming socket; add OTP adapter (if needed)
	OTP Programming Adapters	COP8-PGMA-44QFP	L	For programming 44 QFP on any programmer
		COP8-PGMA-28CSP	L	For programming 28 CSP on any programmer
		COP8-PGMA-44CSP	L	For programming 44 CSP on any programmer
		COP8-PGMA-28SO	VL	For programming 16/20/28 SOIC on any programmer
	COP8-IM	Call MetaLink		
MetaLink	COP8-DM	DM5-KCOP8-SG COP8-DM-SG from NSC	M	Included p/s (PS-10), target cables (DIP and PLCC), 16/20/28/40 DIP/SO and 44 PLCC programming sockets. Add OTP adapter (if needed) and target adapter (if needed)
	DM Target Adapters	MHW-CNVxx (xx = 33, 34 etc.)	L	DM target converters for 16DIP/20SO/28SO/44QFP/28CSP; (i.e. MHW-CNV38 for 20 pin DIP to SO package converter)
	OTP Programming Adapters	MHW-COP8-PGMA-DS	L	For programming 16/20/28 SOIC and 44 PLCC on the EPU
		MHW-COP8-PGMA-44QFP	L	For programming 44 QFP on any programmer
		MHW-COP8-PGMA-28CSP	L	For programming 28 CSP on any programmer
	COP8-IM	IM-COP8-AD-464 (-220) (15 MHz maximum)	H	Base unit 15 MHz; -220 = 220V; add probe card (required) and target adapter (if needed); included software and manuals
	IM Probe Card	PC-COP8SG44PW-AD-10	M	15 MHz 44 PLCC probe card; 2.5V to 6.0V
		PC-COP8SG40DW-AD-10	M	15 MHz 28/40 DIP probe card; 2.5V to 6.0V
	IM Probe Target Adapters	MHW-SOIC28	L	28 pin SOIC adapter for probe card
		MHW-CSP28	L	28 pin CSP adapter for probe card
		MHW-CONV33	L	44 pin QFP adapter for 44 PLCC probe card
KKD	WCOP8-IDE	WCOP8-IDE	VL	Included in DM and EM
IAR	EWCOP8-x	COP8-SW-EWCOP8M	L - H	Included all software and manuals

COPSA Family Tools Selection

Byte Craft	COP8C	COP8C COP8CWIN	M	Included all software and manuals
Aisys	DriveWay COP8	DriveWay COP8	L	Included all software and manuals
OTP Programmers		Go to: www.national.com/cop8	L - H	A wide variety world-wide
Cost: Free; VL =< $100; L = $100 - $300; M = $300 - $1k; H = $1k - $3k; VH = $3k - $5k				

WHERE TO GET TOOLS

Tools are ordered directly from the following vendors. Please go to the vendor's web site for current listings of distributors.

Vendor	Home Office	Electronic Sites	Other Main Offices
Aisys	U.S.A.: Santa Clara, CA 1-408-327-8820 fax: 1-408-327-8830	www.aisysinc.com info@aisysinc.com	Distributors
Byte Craft	U.S.A. 1-519-888-6911 fax: 1-519-746-6751	www.bytecraft.com info@bytecraft.com	Distributors
IAR	Sweden: Uppsala +46 18 16 78 00 fax: +46 18 16 78 38	www.iar.se info@iar.se info@iar.com info@iarsys.co.uk info@iar.de	U.S.A.: San Francisco 1-415-765-5500 fax: 1-415-765-5503 U.K.: London +44 171 924 33 34 fax: +44 171 924 53 41 Germany: Munich +49 89 470 6022 fax: +49 89 470 956
ICU	Sweden: Polygonvaegen +46 8 630 11 20 fax: +46 8 630 11 70	www.icu.se support@icu.se support@icu.ch	Switzeland: Hoehe +41 34 497 28 20 fax: +41 34 497 28 21
KKD	Denmark:	www.kkd.dk	
MetaLink	U.S.A.: Chandler, AZ 1-800-638-2423 fax: 1-602-926-1198	www.metaice.com sales@metaice.com support@metaice.com	
National	U.S.A.: Santa Clara, CA 1-800-272-9959 fax: 1-800-737-7018	www.national.com/cop8 support@nsc.com europe.support@nsc.com	Europe: +49 (0) 180 530 8585 fax: +49 (0) 180 530 8586 Distributors Worldwide

The following companies have COP8 programmers in a variety of configurations. Contact your local office or distributor. You can link to their web sites and get the latest listing of approved programmers from National's COP8 OTP Support page at: www.national.com/cop8.

Advantech; Dataman; EE Tools; Minato; BP Microsystems; Data I/O; Hi-Lo Systems; ICE Technology; Lloyd Research; Logical Devices; MQP; Needhams; Phyton; SMS; Stag Programmers; System General; Tribal Microsystems; Xeltek.

CUSTOMER SUPPORT

Complete product information and technical support is available from National's customer response centers, and from our on-line COP8 customer support sites.