UDE FLASH Programming

UDE MemTool FLASH/OTP Memory Programming Tool

UDE MemTool is a tool for programming on-chip as well as external FLASH/OTP and EPROM's. It integrates seamlessly with the UDE Universal Debug Engine Integrated Development Environment. **UDE MemTool** comes as **add-in** for the

Sube - Memtool 2021

Universal Debug Engine (UDE) and allows the FLASH/OTP programming during the developme cycle inside of UDE. UDE MemTool is aware of the memory map and runs the programming algorithm when required.

UDE MemTool can be used with a separate frontend interface as tool. All programming functions are available via standard COM automation interfaces, too. Using these interfaces, the features of UDE MemTool may be integrated

	File Target Device Log Help							
e development	File :		FLASH/OT	P · Memory Device				
s aware of	C275\MulticoreDemo\HighTec_IntRom\MulticoreDemo.hex		PFLASH0: 2 MByte OnChip Program FLASH				🔽 Enable	
amming	0x80000000 - 0x80002387 0x80002400 - 0x800024FF	Open File	Index	Start	End	^	Erase	
4	0x80004000 - 0x80006118	Unselect All	0	0xA0000000 0xA0000000	0xA0003FFF 0xA00023B7		Program	Program all
Execute Memtool Command		X Add SeL >>	1	0xA0002400 0xA0004000 0xA0004000	0xA00024FF 0xA0007FFF 0xA000611B		Verify	Verify all
Current FLASH/0TP Device :		Save As	2	0x40008000 0x40000000	0xA000BFFF 0xA000EFFF		SW Protect	
PFLASH0, 2 MByte OnChip Program FLASH		Read	4	0xA0010000 0xA0014000	0xA0013FFF 0xA0017FFF		UCBs	
Operation :		E dit	6 7	0xA0018000 0xA001C000	0xA001BFFF 0xA001FFFF	~	Info	
Verify 0x4000611C - 0x4000611F			<			>	State	
Result :			Remov	e All Remove Sel			Setup	
success		·						
Progress :		Tool						
		Disconnect	Ready for Me	emtool Command			Help	Exit
Start	Exit Help							

into automatic production and testsystems or started via scripts. Additionally, UDE MemTool offers a batch mode and a command line interface for automation purposes.

UDE GangProgrammer can program FLASH memory devices simultaneously to save time and optimize the resource usage in a production environment.

Functions of UDE MemTool

UDE MemTool offers the following functions (depending on the type of memory):

- Erasing the entire memory module or selected sectors of the memory module
- Loading Intel Hex and Motorola S-Record files
- Programming all or selected portions of the file into the memory module
- Comparing all or selected portions of the file to the current contents of the memory module
- Read back and save-to-disk of the current memory content
- Setting and Resetting the Chip/Sector Protection if applicable (on-chip only)
- UCB (User Configuration Blocks), ABM (Alternate Boot Mode), BMI (Boot Mode Index) header handling for some derivatives.
- UDE MemTool can handle more than one memory module, and is using on-chip RAM.

Supported Microcontroller with On-chip FLASH/OTP Memories

- AURIX and TriCore
- PowerArchitecture and PowerPC
- Cortex-M0, Cortex-M3, Cortex-M4, Cortex-M7, Cortex-R4, Cortex-A8, Cortex-A9, Cortex-A53, XMC1000, XMC4500
- ARM7, ARM9, ARM11, SH-2A
- STM32xx, RH850
- XC2000, XE166, XC800

See complete list at website https://www.pls-mc.com.

Supported External FLASH

- Parallel NOR-FLASHs
- Serial EEPROMs (I2C, SPI, SPIFI)
- NAND-FLASH (on demand)
- Further devices under development or on request.

As communication channels, you can use the ASC bootstrap loader, CAN bootstrap loader, CAN in combination with ASC bootstrap loader and JTAG. The MemTool offers additionally the host-target communication via a standard RS232 host interface (COMx). Besides RS232 interface, the usage of the K-Line interface is possible. Possible communication interfaces between the access devices and the host PC are USB, IEEE1394, or Ethernet can be used.



UDE FLASH Programming

UDE MemTool GangProgrammer

UDE MemTool can program FLASH memory devices simultaneously for saving time and optimizing the resource usage in production environments. The GangProgrammer utility administrates up to 8 programming stations. The particular access devices can be connected to the host PC via USB, IEEE1394, or Ethernet interfaces, utilizing hub devices. The targets are managed by separate target configurations. This provides maximum flexibility to accommodate customer requirements. With a full-custom version, even more advanced features can be included into MemTool.

Programmer 1 (Communication Device SN 604554)		Programmer 5		
Device : PFLASH0: 2 MByte OnChip Program FLASH		Device:		Start All
Operation : Verify 0xA0003000 - 0xA0003FFF	Cancel	Operation :	Start	Start All
Progress :	Error	Progress :	Error	Cancel All
				Verily AI
hogrammer 2 (Communication Device SN 604544) Device :	-	Programmer 6 Device :		Test All
Operation : Finished	Start	Operation :	Start	
Progress :	Enor	Progress :	Error	1.
rogrammer 3 (Communication Device SN 604444)		Programmer 7		
Device :		Device:		<u> </u>
Operation : Finished	Start	Operation :	Start	T
Progress :	Error	Progress :	Eiror	
rogrammer 4 (Communication Device SN 604555)		Programmer 8		T
Device :		Device:		Setup
Operation : Finished	Start	Operation :	Start	Help
Progress :	Enor	Progress	Error	Exit

UDE MemTool Product Overview

UDE Product ID	MemTool	MemTool	MemTool	MemTool
Device	/UAD2 ^{pro}	/UAD2 ^{next}	/UAD3⁺	/ASC
Target µController³	Universal	Universal	Universal	Host
Communication interface	Access	Access	Access	Serial
	Device 2 ^{pro}	Device 2 ^{next}	Device 3 ⁺	RS232
AURIX, TriCore, PowerPC, XE166, XC2000, XMC1000/4500, STM32				
ASC-Bootstrap Loader / ASC	\checkmark	\checkmark		✓ ¹
AURIX, TriCore, PowerPC, XE166, XC2000, XMC1000/4500, STM32				
CAN-Bootstrap Loader	\checkmark	\checkmark		
AURIX, TriCore, PowerPC, XE166, XC2000				
K-Line	\checkmark^2	✓ ²		\checkmark^2
AURIX, TriCore, PowerPC, ARM, Cortex, SH-2A, XC2000, RH580				
JTAG/DAP/SWD	✓ 3	✓ 3	✓ ³	
AURIX, TriCore				
DXCPL (DAP over CAN Physical Layer)	√ ³	√ ³		

1) No additional hardware required 2) External K-Line converter required 3) Ask for supported derivatives and see website http://www.pls-mc.com.

Licensing of the UDE MemTool

For UDE MemTool, one license is required per seat. MemTool for more than one controller architecture requires an architecture upgrade. Other licensing models are available on request, e.g. Department/ Company License or OEM license model. The UDE MemTool license includes a one-year maintenance and support contract, which may be renewed every year. The license includes one custom specific adaptation (product) to a particular target system by PLS Development Tools. Thus, the MemTool Configuration Form' is used to define the specific target system configuration. Using this example, it is simple to create additional MemTool adaptations to other target systems by the customer himself.

With a full-custom MemTool, even more advanced features can be included into MemTool (e.g. integration into automatic production and test systems). Please contact us for specification and quotation.

If you have any questions about our produc	ts, please feel free to contact us:	(Venderstanders	$\overline{}$
PLS Programmierbare Logik & Systeme GmbH Technologiepark Lauta D-02991 Lauta Germany	PLS Development Tools 10080 N. Wolfe Rd., Suite SW3-200 Cupertino, CA 95014 USA	Your local partner:	
Phone: + 49 35722 384 - 0	Phone: +1-949-863-0327 Toll Free: +1-877-77-DEBUG		
www.pls-mc.com			
info@pls-mc.com			2023_1207
		Development	Tools