HALCoGen 04.05.00

Release Notes

15th July 2015

HALCoGen™ is the driver generation tool for TI's Hercules Microcontroller Family

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1 New In This Release

- Bug Fixes and few GUI Enhancements.
- Added TLK111 EMAC PHY support for following devices
  TMS570LC43x --> TMS570LC4357ZWT
  RM57x --> RM57L843ZWT

Note:

For all HALCoGen FreeRTOS based projects used with CCS, in the Compiler options under Advanced Options → Language Options → "Enable support for GCC Extension (--gcc)".

Note:

For TMS570LC43x and RM57x Family of Devices Safety Functions are support only in SafeTI Diagnostic Library version 2.1.0 which can be installed along with HALCoGen 4.01.00 or later.

For using SafeTI Diagnostic Library with HALCoGen
please refer Examples → example_SafetyLib.c in following Help file
C:\ti\Hercules\HALCoGen\<vXX.YY.ZZ>\help\TMS570LC43x.chm (or)
C:\ti\Hercules\HALCoGen\<vXX.YY.ZZ>\help\RM57Lx.chm

2 System Requirements

The system requirements for HALCoGen are as follows:

OS – Windows XP, Windows 7

Memory – 1GB

Disk Space – 750 MB

3 Installing HALCoGen

The Latest HALCoGen version can also be downloaded from the following Link **http://www.ti.com/tool/halcogen**.

The tool gets installed in the directory named..**\HALCoGen\vXX.YY.ZZ**

Where **XX.YY** is the version number and **ZZ** is the Patch number if released. Multiple versions can co-exist, although it is advised to use the latest version.

4 Uninstall HALCoGen

The HALCoGen can be uninstalled one version at a time.

ti → Hercules→ HALCoGen → vXX.YY.ZZ → uninstall.exe

5 Release Contents

This release supports the drivers for the following variants:

Modules	*TMS470M*	*TMS570LS 20x*	*TMS570LS 31x/RM48x*	*TMS570LS 12x/RM46x*	*TMS570LS 09x/07x/RM44x*	*TMS570LS 04x/RM42x*	*TMS570LC 4x/RM57x*
Cortex-R4	-	✓	✓	✓	✓	✓	-
Cortex-R5	-	-	-	-	-	-	✓
Cortex-M3	✓	-	-	-	-	-	-
freeRTOS	✓	✓	✓	✓	✓	✓	-
SYSTEM	✓	✓	✓	✓	✓	✓	✓
PINMUX	-	-	✓	✓	✓	✓	✓
MPU	✓	✓	✓	✓	✓	✓	✓
PMU	-	✓	✓	✓	✓	✓	✓
VIM	✓	✓	✓	✓	✓	✓	✓
ESM	-	✓	✓	✓	✓	✓	✓
Memory Map	✓	✓	✓	✓	✓	✓	✓
RAM	✓	✓	✓	✓	✓	✓	✓
FLASH	✓	✓	✓	✓	✓	✓	✓
GCM/Oscillator	✓	✓	✓	✓	✓	✓	✓
PLL	✓	✓	✓	✓	✓	✓	✓
DCC	-	-	✓	✓	✓	✓	✓
CCM	-	✗	✗	✗	✗	✗	✗
PMM	-	-	✓	✓	✓	✓	✓
POM	-	✗	✓	✓	-	-	✓
EMIF	-	✗	✓	✓	-	-	✓
PBIST	-	✓	✓	✓	✓	✓	✗
LBIST(STC)	✓	✗	✓	✓	✓	✓	✗
MBIST	✓	✗	✓	✓	✓	✓	✗
EFUSE	-	-	✓	✓	✓	✓	✗
RTP-IO	-	-	✓	-	-	-	✗
DMM-IO	-	-	✓	-	-	-	✗
ETPWM	-	-	-	✓	✓	-	✓
ECAP	-	-	-	✓	✓	-	✓
EQEP	-	-	-	✓	✓	✓	✓

✓ Available

✗ Not Available

- Not Applicable

Modules	*TMS470M*	*TMS570LS20x*	*TMS570LS31x/ RM48x*	*TMS570LS12x/ RM46x*	*TMS570LS09x/07x/ RM44x*	*TMS570LS04x/ RM42x*	*TMS570LC4x/RM57x*
RTI	✓	✓	✓	✓	✓	✓	✓
GIO	✓	✓	✓	✓	✓	✓	✓
SCI	✓	✓	✓	✓	✓	✓	✓
LIN	✓	✓	✓	✓	✓	✓	✓
SPI	✓	×	✓	✓	✓	✓	✓
SPI/MIBSPI	✓	✓	✓	✓	✓	✓	✓
CAN	✓	✓	✓	✓	✓	✓	✓
ADC	✓	✓	✓	✓	✓	✓	✓
HET	✓	✓	✓	✓	✓	✓	✓
HTU	-	×	×	×	×	×	×
I2C	-	-	✓	✓	✓	×	✓
EMAC	-	-	✓	✓	-	-	✓
DMA	-	×	✓	✓	✓	✓	✓
PCR	-	×	✓	✓	✓	✓	✓
EPC	-	-	-	-	-	-	✓
NMPU	-	-	-	-	-	-	✓
USB	-	-	- / ✓	- / ✓	-	-	-
FlexRay™	-	-	× / -	× / -	-	-	×
FTU	-	-	× / -	× / -	-	-	×
FEE	✓	-	✓	✓	✓	✓	✓

✓ Available

× Not Available

- Not Applicable

6 Fixed In This Release

Following are the list of issues fixed in version 04.05.00 from 4.04.00

References	Description
SDOCM00114950	**EMAC**: need to refactor phy from emac.h, emac.c files to support different PHY.
SDOCM00116678	**HET**: Add Checkbox in HET main TAB to select PINDIS feature
SDOCM00116679	**CORE**: Add DSB (Delay) inside CacheEnable routines
SDOCM00116817	**PINMUX**: HALCoGen MII/RMII selection tied to Pin Muxing Tab rather than Special Pin Muxing.
SDOCM00117051	**PINMUX**: EQEP PinMux Bug in device TMS570LC4357.
SDOCM00117054	**PINMUX**: Some PINMMR configurations are unnecessary on RM46x family.
SDOCM00117065	**FEE**: FEE does not work with default MPU settings for TMS570LC4xx device.
SDOCM00117070	**FEE**: HalCoGen's FEE Driver Includes AutoSAR Headers -> Incompatible with C99 and breaks build.
SDOCM00117282	**FREERTOS**: Function called by vPortSWI do corrupt R0
SDOCM00117288	**ESM**: esmHighInterrupt is hard to read and has dead code in it
SDOCM00117666	**CCM**: ccmSelfCheck API clears wrong shadow status registers
SDOCM00115686	**STARTUP**: HALCoGen needs to apply errata cortex 57, 66 after any reset
SDOCM00115693	**PINMUX**: HalCoGen Pinmux Tab Incorrectly Labels "Gate off EMIF_CLK output' checkbox.
SDOCM00115710	**PINMUX**: PINMUX_GIOx_DMA_ENABLE(state) Macro Definitions use incorrect addresses in drivers\TMS570LC4357ZWT\PINMUX570v000\pinmux.c
SDOCM00115694	**DMM**: DMM GIO port address wrong for some targets

7 Known Issues and Limitations

Following are the list of Known issues and limitations in this version.

References	Description
SDOCM00084753	**SYS**: Since the PLL tab does not spit out warnings if any final or intermediate frequencies generated are out of spec. **Root Cause**: HALCoGen Engine limitation. **Workaround**: Refer the device Technical Reference Manual for recommended PLL configurations.
SDOCM00086009	**Tool:** No KEIL tool support for TMS470M devices
SDOCM00087899	**FEE:** The FEE driver GUI in TMS470Mx family only supports 10 blocks. **Root Cause**: GUI support is complex since it's not dynamic. **Workaround**: Generated Header file can be edited manually to required blocks.
SDOCM00095488	**CAN:** Support for Mixed mode in CAN driver is necessary. **Root Cause**: GUI support is complex. **Workaround**: Using User Code section Mailbox configuration can be changed.
SDOCM00088096	**ADC:** Interrupt Enable Check box for Event, Group1 and Group2 groups for ADC1, ADC2 in HCG. **Root Cause**: GUI support is complex. **Workaround**: Separate API's are supported in the driver. Interrupt can be enabled by calling the Enable Notification API.

8 User Notes

- 02.xx.xx HALCoGen Pjt cannot not be opened in 03.xx.xx or greater HALCoGen versions. User has to redo configuration with latest HALCoGen.
- Any directory should not have more than one HALCoGen project (.hcg and .dil files). Each project should be in an individual directory.
- From HALCoGen Version 3.00.00 onwards the header files are generated in include directory and other driver files in source directory. The user needs to set this include path in the 'project include settings' while building it.

  (Eg: In compiler (cl470) add option → "--include path (**path**)/include").
- When selecting HET2 – Advanced Configuration Mode / Disable Black box user must make sure the "Select Header File & Source file" inputs are generated out of NHET assembler using option "–n1 –hc32".
- HALCoGen does not delete any files placed/generated under source or include folder generated by HALCoGen.
- To use USB drivers in RM48x and RM46x family of devices Enable support for GCC extensions (--gcc) in compiler options.
- If running CPU Self test in debug mode, the debug info are lost immediately after CPU self test eg., All breakpoints set before CPU self test are lost.
- CCM Self test cannot be run in debug mode.
- HALCoGen must be used with default 100% Font size only. http://e2e.ti.com/support/microcontrollers/hercules/f/312/t/184660.aspx
- Following options must be selected under **MULTI IDE** project to use HALCoGen generated code for GHS.
  - **-T** < Generated code path >\source\sys_link.cmd
  - **-I** < Generated code path >\include
  - **-no_auto_interrupt_table**
  - **-e resetEntry**