HALCoGen 04.05.02

Release Notes

02nd Mar 2016

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.
- PLL supports floating point multiplier values.
- Optimized EMAC driver to support inline swizzle function.
- Added API's to find the Configured Speed Status from EMAC phy.
- Added HALCoGen WIKI Link to Start page.
- Optimized MIBSPI driver code based on Transfer Group selection in GUI.

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.x.y 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 04.05.02 from 4.05.01

References	Description
SDOCM00119321	Errors in std_nhet.h and HL_std_nhet.h. ext_reg bit field is missing from control word of certain instruction structure.
SDOCM00119356	HalCoGen does not properly support fractional multiplier in the PLL
SDOCM00119461	Byte swizzle function necessary to write to the CPPI RAM is missing
SDOCM00119496	FreeRTOS portSAVE_CONTEXT will break if used with Interrupt nesting
SDOCM00119524	Example_mibspiDma.c shows the wrong buffer mode
SDOCM00119525	The example shows the wrong size for the transfer group in the graphic/instruction for configuring HALCoGen.
SDOCM00119532	In the GUI Error reported when trying to change pull on GIOB_3
SDOCM00119551	In EMACReceive Byte swizzle function necessary to write to the CPPI RAM is missing
SDOCM00119577	MIBSPI1 Transfer group tab only allows configuration of TG0 on TMS570LC43 and RM57
SDOCM00120020	Wrong macro used in the etpwm_ecap_example
SDOCM00120021	When using the IRQ dispatch mode, ISRs in the ECAP module are generated the with #pragma INTERRUPT(). This causes the the handler to go in an infinite loop
SDOCM00120020	Wrong macro used in the etpwm_ecap_example
SDOCM00120021	When using the IRQ dispatch mode, ISRs in the ECAP module are generated the with #pragma INTERRUPT(). This causes the the handler to go in an infinite loop
SDOCM00120181	HalCoGen Code causes ECC error during auto initialization when generated with no drivers selected
SDOCM00120182	HalCoGen hard-codes the MDIO input clock frequency to 32MHz; while on silicon the input clock is VCLK3.
SDOCM00120186	Incorrect GUI Selection on Pinmux Tab when using GIOB short cut / TMS570LC4357 / RM57L.
SDOCM00120188	Error in linker command file for TMS570LS1115 device has 1.0Mbyte of flash, not 1.28MBytes
SDOCM00120196	Bug in pinmux.h, ball L5, LS3137, PINMUX_BALL_L4_SHIFT is used instead of PINMUX_BALL_L5_SHIFT.
SDOCM00120375	HALCoGen is crashing when tried to choose any tab ADC2 Group event, ADC2 group1 or ADC2 group2 in TMS570LS0714PZ.
SDOCM00120560	HALCoGen does not remember the FEE settings done for virtual sector configuration.

SDOCM00120617	EMAC Configuration for RMIISPEED (10MBps/100MBps) is missing. Causes problems in RMII Mode.
SDOCM00121059	Error in linker command files for LS1115.
SDOCM00121158	HALCoGen does not remember the FEE settings done for virtual sector configuration.FEE data is corrupted if the copy operation of locks is interrupted(SDOCM00121279)
SDOCM00121172	Typo Errors in pinmux.h for TMS570LC4357 and RM57L843 cause compile error.
SDOCM00121232	Multiple reads of hardware register causing bug in ADC Driver.
SDOCM00121325	Confirm that HalCoGen initialization code performs PBIST on PBIST ROM and STC ROM before other PBIST/LBIST tests.
SDOCM00121450	Flash tab wrong sector information for TMS570LS07/09xx(cosmetic).

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**