HALCoGen 04.02.00

Release Notes

17th Nov 2014

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

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1 New In This Release

- Added support for following devices
  - **TMS570LS09x**
    - ***TMS570LS0914PZ, TMS570LS0914ZWT, TMS570LS0914PGE***
  - **TMS570LS07x**
    - ***TMS570LS0714PZ, TMS570LS0714ZWT, TMS570LS0714PGE***
  - **RM44x**
    - ***RM44L520PZ, RM44L520PGE, RM44L522ZWT***
    - ***RM44L920PZ, RM44L920PGE RM44L922ZWT***
- Added GCC tool support and tested with GNU gcc-arm-none-eabi-4_8
- Added GCC and IAR tools support for TMS570LC43xx and RM57Lxx
- Enhanced FEE Driver.
- Support LIN Slave Mode
- Enhanced I2C drivers
- Bug Fixes and few GUI Enhancements.
- Bundled F021 Flash API V02.01.01

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.

For using SafeTI Diagnostic Library with HALCoGen please refer Examples → example_SafetyLib.c in following Help file C:\ti\Hercules\HALCoGen\v04.02.00\help\TMS570LC43x.chm (or) C:\ti\Hercules\HALCoGen\v04.02.00\help\RM57Lx.chm

2 System Requirements

The system requirements for HALCoGen v4.00.00 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	*TMS470 M*	*TMS570L S20x*	*TMS570L S31x/ RM48x*	*TMS570L S12x/ RM46x*	*TMS570L S09x/07x/ RM44x*	*TMS570L S04x/ RM42x*	*TMS570LC 4x/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 04.02.00 from 4.01.00

References	Description
SDOCM00113352	**EMIF:** emif_SDRAMInit causes ESM error - SCM timeout (group1 channel 91) on TMS570LCxx family of devices.
SDOCM00113507	**I2C:** I2C Add an API function to read the MST bit in the I2CMDR register.
SDOCM00113508	**I2C:** Add an API function to read the BB bit in the I2CSTR register
SDOCM00113509	**I2C:** I2C Stop Condition in the GUI is unnecessary since it is not one time configuration.
SDOCM00113510	**I2C:** I2C Data Count in the GUI is unnecessary since it is not one time configuration.
SDOCM00113511	**I2C:** The I2C module doesn't has to be configured for Master / Slave mode in the GUI, as this bit (I2CMDR --> MST) gets cleared automatically after Master transmission or reception has completed.
SDOCM00113512	**I2C:** I2C Transmitter / Receiver Mode should be configurable with API function
SDOCM00113535	**FEE:** In HALCoGen GUI, for FEE driver, Virtual is misspelled as Virtal in FEEGlobal and FEE Virtual Sector Configuration tabs.
SDOCM00113537	**CAN:** Can.c missing the #if __LITTLE_ENDIAN__ == 1 for the IAR Compiler.

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.
Device#41	**FEE:** Power-on Reset During Bank 7 Sector Erase May Corrupt Other Sectors. **Applicable to Device Family : TMS570LS0xxx, RM42x, RM41x, RM44x, TMS570LCxx and RM57x** **Expected Behavior:** A power-on reset (nPORRST) during sector erase will not affect sectors other than the one being erased. **Issue:** A power-on reset while doing a sector erase may corrupt other sectors. Typically sector zero is corrupted when trying to erase one of the other sectors. **Condition:** Doing sector erase of bank 7 **Implication(s)**: Data in the other sector will be partially erased. This will likely result in ECC errors when trying to read data from that sector. **Workaround(s)**: Before starting the sector erase, write to the FSM_SECTOR1register (0xFFF872C0) only enabling the sector desired to be erased.

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**