HALCoGen 04.03.00

Release Notes

16th Feb 2015

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

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1 New In This Release

- Ported FreeRTOS v8.2.0
- Added FreeRTOS support for TMS570LS1224PGE and RM46L852PGE device
- Added GCC tool ARM and Thumb interworking support
- Enhanced FEE Driver – Device#41 Errata Fix.
- Enhanced I2C drivers with examples
- Bug Fixes and few GUI Enhancements.
- Bundled Safety Diagnostic Library V2.2.0
- Bundled F035 Flash API V1.09
- Bundled F021 Flash API V2.01.01

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\v04.03.00\help\TMS570LC43x.chm (or)
C:\ti\Hercules\HALCoGen\v04.03.00\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 04.03.00 from 4.02.00

References	Description
SDOCM00114158	**FEE**: Incorrect brief description of TI_FEE_TOTAL_BLOCKS_DATASETS macro.
SDOCM00114334	**USB**: HALCoGen does Not Save USB Serial Parameter Between Sessions.
SDOCM00113508	**MIBSPI**: HALCoGen Generates Incorrect default CS setting for MibSPI Driver Code for PGE Package
SDOCM00114424	**SCI**: Typecast error in sciBaudrate calculation API.
SDOCM00114432	**GCC**: ARM and Thumb mode inter-working issues with ASM files.
SDOCM00114451	**VIM**: VIM_CHANNELS structure is used incorrectly in Initialization.
SDOCM00114470	**ESM**: Writes to unavailable ESM registers need to be removed.
SDOCM00114502	**PINMUX**: Enabling and disabling peripherals in Pinmux tab is not working as expected in RM46x devices.
SDOCM00114547	**FreeRTOS**: Bug in portmacro.h for FreeRTOS, same MPU regions is configured stacks and user task section.
SDOCM00114658	**PINMUX**: PINMUX tab for RM46L430PGE doesn't show all available pins
SDOCM00114661	**PINMUX**: Default Chip Select field isn't correctly displayed in MIBSPI1 Transfer Groups tab for RM46L430PGE
SDOCM00114676	**IAR**: Compile error in HALCoGen generated code with IAR tools when EPC interrupt is enabled
SDOCM00114734	**FEE**: Implement FEE fix for Errata SPNZ215A. F021 v02.00.01 does not support writing into FSM_SECTOR register through API.
SDOCM00114795	**I2C**: I2C Mode API has "|= mode ", it must be "|= (~MASTER & mode).
SDOCM00114802	**ESM**: ESMKEY register must be cleared manually after servicing any ESM group2 error.
SDOCM00114830	**DMM**: DMM and RTP modules missing in devices TMS570LC43x and RM57x.
SDOCM00114829	**C++:** ADC.h and std_nhet.h files does not have c++ support.
SDOCM00114832	**FEE**: TMS570LS09x FEE compile error "Std_Types.h" should not be included in the files.

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**