

HALCoGen 04.06.01

Release Notes

08th Feb 2017

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

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1 New In This Release

- Patch Release to address Bug Fixes and few minor GUI Enhancements.
- Included SafeTI Diagnostic Library version 2.3.1

Note:

Before using the AJSM please refer the forum link for support Tools info:

https://e2eprivate.ti.com/safeti_functional_safety_support/m/hercules_ajsm_related_media/3575.aspx

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	<i>TMS470M</i>	<i>TMS570LS 20x</i>	<i>TMS570LS 31x/RM48x</i>	<i>TMS570LS 12x/RM46x</i>	<i>TMS570LS 09x/07x/R M44x</i>	<i>TMS570LS 04x/RM42x</i>	<i>TMS570LC 4x/RM57x</i>
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	<i>TMS470 M</i>	<i>TMS570L S20x</i>	<i>TMS570L S31x/ RM48x</i>	<i>TMS570L S12x/ RM46x</i>	<i>TMS570L S09x/07x/ RM44x</i>	<i>TMS570L S04x/ RM42x</i>	<i>TMS570LC 4x/RM57x</i>
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

Current details of the Device wise Software Maturity Level and the Bug list can be found in the HALCoGen WIKI Page

<http://processors.wiki.ti.com/index.php/HALCoGen>

6 Fixed In This Release

Following are the list of issues fixed in version 04.06.01 from 4.06.00

References	Description
SDOCM00122737	DCAN FIFO initialization Hardcoded Inspite of GUI checkbox
SDOCM00122778	Error in HalCoGen XML file for pinmux
SDOCM00122823	emif_SDRAM_StartupInit sets the wrong bit in LE devices
SDOCM00122833	In API TI_Fee_ErrorRecovery, poll for flash status before calling TI_Fee_Init
SDOCM00122832	TI_Fee_Format API needs changes since latest fix is not correct for certain combinations.
SDOCM00122821	EMIF.h should not be included in system.c for TMS570LS114PGE
SDOCM00122793	Bug in EMIF SDCR register initialization in HalCoGen 04.06.00
SDOCM00122787	HalCoGen Pinmux Bug - RM44L520PZ
SDOCM00122861	HalCoGen FreeRTOS port and MPU Issue, added user code for flexibility
SDOCM00122836	Possible buffer overflow in vimParityErrorHandler
SDOCM00122846	HalCoGen GUI doesn't validate user input and outputs invalid code for CAN message ID
SDOCM00122780	HalCoGen Pinmux Tab for LS1224 Device Does not allow GIOB_2 to be selected on Pin 55
HCGINT0406001	HalCoGen 4.06.00 crash when selecting RTI Tab/ Clock Tree. https://e2e.ti.com/support/microcontrollers/hercules/f/312/p/567004/2084239#2084239

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.
SDOCM00122504	FEE: HALCoGen FEE Driver Does Not Set Bank Before Writing To Flash.
SDOCM00122496	FEE: HALCoGen FEE Corruption - Block Header Not Written Properly.
SDOCM00122164	SYS: HALCoGen RAM and Stack Locations are Hard-coded.
SDOCM00121738	FEE: FEE Driver Does not Check CRC when reading and CRC option is enabled.
SDOCM00122382	SYS: Clock Tree tab to RM57 and TMS570LC43 are not available.

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**