Freescale Semiconductor

Release Notes

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CodeWarrior Development Studio for StarCore 3850 DSP v10.7.2 Release Notes

Release Description

The 10.7.2 release of CodeWarrior Development Studio for StarCore sc3850 DSP is a general availability release, and introduces PDSCH EDF e-PDCCH and Frequency Hopping in PUSCH EDF with EQPE embedded features in Maple Firmware P13E and P13, new SmartDSP OS R04.11.00, and build tools fixes for BSC9132.

Contents

Important Notes

CodeWarrior Development Studio for StarCore 3850 DSP v10.7.2 adds important updates on several components compared to CW SC 10.7.1 release:

- New MAPLE firmware versions P13 and P13E
- New SmartDSP version R04.11.00
- New compiler version v23_11_06_81
- Updated Documentation

WCDMA based functionality for BSC9132 is removed starting with this firmware release and the following PEs are no longer supported: CGPE, CRPE, CONVPE.

Compatibility

The table below describes the documents revisions and the development tools revisions which are compatible with the release.

Table 1. Document/Tools Compatibility

Tool / Document	Version	Description / Comment
Linux BSP	913x_WUSDK_REL_1.5	Linux BSP version used for 9131 RDB and 9132 QDS validation.

Supported Platforms/Processors

CodeWarrior Development Studio for StarCore 3850 DSP v10.7.2 has support for BSC9131 RDB and BSC9132 QDS.

Please see below the CodeWarrior releases suitable for other StarCore platforms.

Table 2. Tool /Platform Support

Tool	Platform
Code Warrior Development Studio for StarCore 3900FP DSP v10.8.2	B4860, B4420, B4460, B4060 rev. 2.2
Code Warrior Development Studio for StarCore 3900FP DSP v10.6.4	B4860, B4420, B4460, B4060 rev. 1.0
Code Warrior Development Studio for StarCore 3850 DSP v10.7.2	BSC9131, BSC9132
Code Warrior Development Studio for StarCore DSP v10.5.0	MSC8156, MSC8157, MSC8154, MSC8152, MSC8151, MSC8254, MSC8254, MSC8252, MSC8251
CodeWarrior for StarCore DSP v10.2.1	MSC8144
CodeWarrior for StarCore DSP v3.2.1	MSC8122, MSC8126, MSC8113, MSC8112, MSC8101, MSC8103, or MSC711x

Release Content

1.1 MAPLE Firmware

1.1.1 MAPLE-B2P Firmware Version P13E

Firmware MUCVP	0x50D
Code Size	86KB

This release includes the following PEs:

- CRCPE – F2 verified.
- DEPE – F2 verified
- eTVPE – F2 verified
- eFTPE – F2 verified
- EQPE – F2 verified
- PUFFT – F2 verified
- PUSCH EDF (with EQPE enabled) – F2 verified
- PDSCH EDF – F2 verified

The following PEs were removed from this version:

- CRPE ULB
- CRPE DL
- CRPE ULF
- CGPE
- CONVPE

PUSCH EDF with EQPE embedded

- Equalization of 1 layer only (2 layers not supported)
- Supporting Frequency Hopping

PDSCH EDF

- Supports enhanced PDCCH (e-PDCCH) based on Release 11
- Supports N_PRS_RB change per BD
- Positioning Reference Signal provided per Resource Block control. Positioning reference signal will be placed if and only if the RE is expected to contain it and the appropriate RBEN field indicates that it should. Changes of the positioning reference header can be found in the reference manual.

1.1.2 MAPLE-B2P Firmware Version P13

Firmware MUCVP	0x50D
Code Size	80KB

This release includes the following PEs:

- CRCPE – F2 verified.
- DEPE – F2 verified
- eTVPE – F2 verified
- eFTPE – F2 verified

- EQPE – F2 verified
- PUFFT – F2 verified
- PUSCH EDF – F2 verified
- PDSCH EDF – F2 verified

The following PEs were removed from this version:

- CRPE ULB
- CRPE DL
- CRPE ULF
- CGPE
- CONVPE

PDSCH EDF

- Supports enhanced PDCCH (e-PDCCH) based on Release 11
- Supports N_PRS_RB change per BD
- Positioning Reference Signal provided per Resource Block control. Positioning reference signal will be placed if and only if the RE is expected to contain it and the appropriate RBEN field indicates that it should. Changes of the positioning reference header can be found in the reference manual.

1.2 SmartDSP OS

SmartDSP OS version R04.11.00 is introducing 2 new firmware versions for BSC9132 – P13E and P13, for PUSCH with embedded EQPE and without embedded EQPE, respectively.

The following new features were added to support the new firmware versions:

All MAPLE trace events that were available for BSC9131 are now enabled for both BSC9131 and BSC9132, namely PUFFT, PDSCH, and TVPE events.

PUSCH EDF

- CONS_H flag is available for use
- Frequency hopping is enabled

PDSCH EDF

- Assign N_PRS_RB per subframe by supplying it to a PDSCH job's forth flag
- e-PDCCH addition – if PDSCH_BD_EXT_DATA_EN is set in the PDSCH job's third flag, a Sub Carrier External Data should be provided to the job

1.2.1 Performance

SmartDSP OS R04.11.00 kernel performance figures are shown in Table 3.

The mode of calculation was such that each measurement was taken 5 times; once with cold instruction caches and the other without.

The WCS (worst case scenario) is the cold cache result.

The BCS (best case scenario) is the best of the results.

The Avg is the average of the remaining results.

Table 3 SmartDSP BSC9131 and BSC9132 Performance Figures

		BSC9131			BSC9132		
		WCS	**BCS**	**Avg**	**WCS**	**BCS**	**Avg**
HWI prolog/epilog from HWI	HWI Epilog	92	90	90	90	90	90
	HWI Prolog	143	124	124	174	124	124
HWI prolog/epilog from SWI	HWI Epilog	187	179	179	198	179	179
	HWI Prolog	141	124	124	139	124	125
HWI prolog/epilog from Task	HWI Epilog	157	148	148	159	148	148
	HWI Prolog	142	127	127	144	127	127
High priority SWI from low priority SWI	SWI Epilog	255	255	255	256	256	256
	SWI Prolog	338	304	304	343	304	304
High priority Task from low priority Task	Task Epilog	459	449	449	497	436	449
	Task Prolog	479	421	421	491	421	421
Low priority SWI from high priority SWI	SWI Epilog	184	184	184	184	184	184
	SWI Prolog	258	248	248	251	251	251
SWI from Task	SWI Epilog	184	184	184	184	184	184
	SWI Prolog	441	328	328	428	328	328

1.2.2 Important Notes

Note on BSC9131 RDB demos

The demos running on the BSC9131 RDB were tested using a ONCE UTAP connector connected to the 14 pin ONCE HEADER on the RDB. The dip switch settings that are known to work for this connectivity are {1-ON, 0-OFF}:
SW1: 10101001
SW2: 00000000
SW3: 01100100
SW4: 11100000
SW5: 10000000
SW6: 11111111

CodeWarrior supports this connection with the system title BSC9131_SC.

Note on BSC9132 QDS demo
The demos running on the BSC9132 QDS were tested using a COP UTAP connector connected to the 14 pin COP HEADER on the QDS.
Please refer to readme.txt files on the demos for specific instructions.
The dip switch settings that are known to work for this connectivity are {1-ON, 0-OFF}:
SW1: 00011100
SW2: 00111000
SW3: 10011101
SW4: 10010000
SW5: 01010111
SW6: 00011000
SW7: 11100110
SW8: 10011111
SW9: 10011101
SW10: 10001000
SW11: 01010101
SW12: 11100000

CodeWarrior supports this connection with the system title BSC9132.

1.2.3 Known Issues and limitations

BSC9132 PDSCH Hybrid MBSFN Suspected Issue

Failures were observed when using MAPLE PDSCH with hybrid MBSFN use-case. The received output did not match the model expected output. The issue is being investigated (logged as ENGR00344357). The use case was removed from SmartDSP OS PDSCH demo until the root cause is found.

License, copyright

The license key was updated in CodeWarrior for StarCore 3850 DSP v10.7.0 release.

System requirements

Recommended configurations:

- 3GHz Intel® Pentium® P4 processor or better. Dual-core processor preferable.
- Microsoft® Windows Vista, Windows 7, Windows Server 2012 R2
- 2GB RAM (Experience on machines with 1GB RAM is significantly reduced)
- 2.3 GB free disk space

Note: 500MB of free space is required on the OS drive, regardless of the free space available on the destination drive.

Getting Started

The Getting Started Guide for StarCore DSPs.pdf provides instructions on how to install the product, configure BSC913x boards, and how to work with projects.

To install the CodeWarrior software, perform the following steps:
1. Run the installer - the install wizard appears.
2. Follow the wizard's on-screen instructions to install the CodeWarrior software.
3. When installation completes, the **InstallShield Wizard Completed** page appears.
4. Check the Display Documentation checkbox.
5. Click **Finish.**

The SC folder contains several quick start guides for the product:

- Eclipse Quick Reference Card.pdf
- Ethernet TAP Quick Start.pdf
- Getting Started Guide for StarCore DSPs.pdf
- Quick Start for Multicore Tracing.pdf
- Quick Start for StarCore DSPs.pdf
- Service Pack Updater Quick Start.pdf

Comprehensive User Guides

The complete product documentation can be found in the folder SC\Help\PDF and contains the following documents:

- Build Tools Message Reference Manual.pdf
- CodeWarrior Common Features Guide.pdf
- Ethernet TAP Users Guide.pdf
- EWL C Reference.pdf
- EWL C++ Reference.pdf
- Profiling and Analysis User Guide.pdf
- SmartDSP OS API Reference Manual.pdf
- SmartDSP OS User Guide.pdf
- StarCore ABI Reference Manual.pdf
- StarCore Assembler User Guide.pdf
- StarCore C-C++ Compiler User Guide.pdf
- StarCore FAQ Guide.pdf
- StarCore SC100 Linker User Guide.pdf
- StarCore SC3000 Linker User Guide.pdf
- StarCore Simulator User Guide.pdf
- Targeting StarCore DSPs.pdf
- USB TAP Users Guide.pdf

Known Issues and Limitations

This list includes a selection of issues that might impact the CodeWarrior for StarCore users.

Table 4. Known Issues

Known Issue	Abstract	Workaround
IDE		
ENGR0023640	debug_print project fails to build with CW10.5.0 for multicore	Set correct path towards linked libraries.
ENGR00220108	RSE sytem persistence uses too long directory names	Use a workspace at the top level hierarchy of a windows drives (e.g. c:\workspace).
Software Analysis		
ENGR00186856	SA reports function calls "not covered" in some cases	none
ENGR00202735	"Trace and Profile" Support for G1110 was enable in Creation wizard but not in Debug launch Configurations window	none
ENGR00192655	Export trace window is not able to closed/disappeared if you don't want to replace an existed csv file	open location of existed csv file by window exploer and rename this file. now back to 'Export Trace Data to CSV' window of CodeWarrior and you can export with your desired name
ENGR00236912	Cannot build SDOS project with Trace enable support HSST as Trace offload method	none
ENGR00199263	Cannot build the imported project successful	none
ENGR00190261	No Trace is collected after removing all Trace points when debug session started.	If you want to remove all tracepoints, do this offline (not when you are debugging the project). If you don't want to remove all tracepoints, you can do this in both online and offline mode.
ENGR00187044	CW behaves abnormal when ETH get disconnected	none
ENGR00210174	Error connecting to simulator when Debug and Resume profilerdemo_SC3x50 project	none
Simulator		
ENGR00208009	Profiler module ver 1.1.12 for simulator outputs empty results	none
CCS		
ENGR00193932	CCS drivers do not pass WinLogo verification (on Win XP)	none
Build Tools		
ENGR00183307	It takes more than 8 minutes to build the attached project	Use lower optimization level –O0, -O1, -O2
ENGR00185514	C_L_conj gives wrong result when input parameter is -1	None
ENGR00185626	Error: Can't find mapping (2-1), for IL2986 in extract_mapping_solutions	-Xicode --disable_standard_op to disable standard optimizations in icode.
ENGR00186055	EVRC Codec is not bit-exact anymore	use -Xicode --achieve_cross_compo=FALSE for the specific file
ENGR00186389	Incorrect code generated in function pexInitialize	Add following lines in file

		msc8156_drivers_smartdsp_os.appli module "pex_init" [function _pexInitialize [active_sequential_access = FALSE]]
ENGR00192550	HwdrvGetGainOffset works abnormal when O3 is used	Add "-e0 -ee0" to the LLT options
ENGR00192872	Some strange code generated for function cif_ue_context_config_processing_action()	use -O3 optimization level for the whole file
ENGR00192893	Icode internal error on EDM_GMSK_ACS kernel	use fewer modulo registers in loops, as it is not efficient for the compiler to spill them
ENGR00194567	ICODE crash when tries to perform modulo addressing	don't use #pragma safe_mod for the 2 loops
ENGR00195487	Performance degradation after "unroll & jam"	None
ENGR00196023	Loop issue in customer kernel	None
ENGR00197523	Compilation time is too long: Customer accepts less than 60 seconds compilation time per file	None
ENGR00197639	Unsigned 64 bit value misinterpreted as signed 32 bit	Use –Xicode --achieve_induction=false
ENGR00198461	FATAL ERROR: Internal compiler error 11.. Aborting...	Remove #pragma align dio_chunk 0x10000000 and replace with struct dio_mem_area dio_chunk __attribute__((section("dio_chunk_seg "))) ;
ENGR00199029	Compiler generates incorrect code with optimization	Following work around seems to cure the problem: 1- Define the function extract_command as non static and disable inlining of taht function. 2- Remove initialization of *pActualLength to 0 at line 148 3- Build with ICODE option --scalarization=FALSE
ENGR00199341	Wrong input parameter to memset function	None
ENGR00201338	Linker reports error when moving global definition from one file to another	None
ENGR00203863	Can’t generate code based on MACRO from command line with newer linux compilers	A workaround is to use -Xcfe "-D..." to bypass SCC's -D handler, e.g.; something like this: scc -v -arch sc3850 -be -Xcfe "-DMACRO=\"Hello World\"" test.c
ENGR00204856	Execution result is incorrect in case of opt level 1 or higher	Build function ImageConvert within module test.c with ICODE option achieve_composition = FALSE
ENGR00205346	Performance degradation in WCDMA function ArkFilterAlfaBeta (Test case 29) for about 14.5% between 23.11.1.27D and 23.11.3.26	none
ENGR00206943	Switch_To_Rom=TRUE generated jump-to table is not suitable for multi-core	Do NOT use Switch_To_Rom=TRUE
ENGR00235314	segment is not aligned	None
ENGR00235392	Internal compiler error with statement like if ((modulatorSettings[i].symbol_rate > 0) == (0))	1- Change the line 12631 from if ((modulatorSettings[i].symbol_rate > 0) == (0)) to if (!(modulatorSettings[i].symbol_rate > 0)) 2- add following pragma prior to the

		implementation of function init_modulator #pragma fspeephole off You can then add following pragma at the end of the function implementation #pragma fspeephole on
Debugger		
ENGR00225771	Breakpoints hit not correct after executed "Mulitcore Resume"	the user can enable/disable the breakpoint instances individually for each core, from the breakpoint view.

Contact Information

User Forum and FAQ

After looking through these release notes, and the documentation that comes with the installation of CodeWarrior, the next best place to look for answers to your questions is the online user forums located at

http://forums.freescale.com

Please check:

- **CodeWarrior for StarCore DSPs** forum for issues related to CodeWarrior development tools. The Frequently Asked Questions about CodeWarrior for StarCore DSP are posted here.
- **StarCore DSPs** forum for issues related to the silicon and hardware platforms.

The forums provide a great way to learn by seeing the questions and answers posted by other users. Of course, you can post your own questions and responses as well.

Contacting Freescale

Finally, if you still have questions not addressed in the release notes, or wants to provide feedback, please use the Freescale online support web page. To use this page, follow these steps:

1. In a web browser, go to http://www.freescale.com/TechSupport.

   Freescale's **Technical Support** web page appears.
2. On this page, click the Create service request online link.

   The **New Service Request — Category/Topic** page appears.
3. From the Category dropdown menu, select Technical Request.
4. From the Topic dropdown menu, select CodeWarrior (or other appropriate topic).
5. Click **Next**.

   The **New Service Request — SR Details** page appears.
6. In this page, enter the requested information.

   At a minimum, enter information in each field marked by an *.
7. Click **Submit**.

   If you are already logged in, the **Service Request Confirmation** page appears. Go to the last step.

   If you are not already logged in, the **Log-in** page appears.

8. If you are a registered member, login with your user name and password.

   The **Service Request Confirmation** page appears. Go to the last step.
9. If you have not yet registered,
   a. If you want to become registered member, click **Register Now** and complete the registration process.

      The **Service Request Confirmation** page appears.
   b. If you do not want to register, supply your contact information in the **I do not want to register - Provide contact information** form and click **Submit**.

      The **Service Request Confirmation** page appears.
10. Click **Done**.

Your service request is submitted.

Release Quality

This list includes the issues reported by external customers that are now fixed compared to CW 10.7.1 release.

Build Tools	
ENGR00338028	Optimized code is generating incorrect hardware loops, missing dosetup
ENGR00338569	Compiler never completes when loop unroll pragma is present
ENGR00337324	linker from cw10.7.1SP can not link the attached application
ENGR314930	Compiler issue in generating code for constant operands in O0
ENGR318596	Emulation library for shr_ intrinsics are incorrect
ENGR326498	Compiler 10.7.1 generate wrong asm for while loop.
ENGR326500	Wrong pointer modification in 10.7.1
	Remove week binding warning generated by the linker
SmartDSP OS	
ENGR00316512	in osSwiActive() OS_FLG_SWI_REQ flag may be cleared while swi are waiting to be called
ENGR00319091	AIC TDD DL_OFF and UL_OFF callbacks will not be called
ENGR00326506	corrected HSSI_IO_SEL_SRDS_MASK macro in psc9x32_hssi_.h
ENGR00327513	Wrong CPRI error interrupt handling - provided wrong argument
ENGR00331758	osBioChannelClose() leaks frames and buffers in the BIO channel
ENGR00333998	AIC driver RECONFIGURATION function applied removal of newer interrupts (TDD, TTI...) only for BSC9132
ENGR00341981	Startup code should not initialize L1 cache or L2 cache in case of recovery / restart. SmartDSP OS includes a w/a for this issue.

How to Reach Us:

Home Page:
www.freescale.com

Web Support:
www.freescale.com/support

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