



Release Information

ABCC Starter Kit

7077 - ABCC Starter Kit
Application
Version 3.08
20211216

This release contains:

Type	File	Label	File updated in this release
This document	-	-	Yes
ABCC starter kit	ABCC_Starter_Kit_3.08.01.zip	7077_3.08.01	Yes
	ABP	8041_7.79.01	Yes
	ABCC40 Application driver	7075_5.08.01	Yes
CANopen EDS files	CompactCom 40 CANopen ADIMAP_ALLTYPES.eds	7077_3.08.01	No
	CompactCom 40 CANopen ADIMAP_BOARD_IO.eds		
	CompactCom 40 CANopen ADIMAP_SEPARATE_16.eds		
	CompactCom 40 CANopen ADIMAP_SIMPLE_16.eds		
	CompactCom 40 CANopen ADIMAP_SPEED_EXAMPLE.eds		
PROFIBUS GSD file	HMSX1815.gsd	7077_3.08.01	No
PROFINET GSDML files	GSDML-V2.41-HMS-CompactCom_40_ADIMAP_ALLTYPES-20210914.xml	7077_3.08.01	Yes
	GSDML-V2.41-HMS-CompactCom_40_ADIMAP_BOARD_IO-20210914.xml		
	GSDML-V2.41-HMS-CompactCom_40_ADIMAP_SEPARATE_16-20210914.xml		
	GSDML-V2.41-HMS-CompactCom_40_ADIMAP_SIMPLE_16-20210914.xml		
	GSDML-V2.41-HMS-CompactCom_40_ADIMAP_SPEED_EXAMPLE-20210914.xml		
PROFINET Fiber Optic GSDML files	GSDML-V2.41-HMS-CompactCom 40_FO_ADIMAP_ALLTYPES-20210914.xml	7077_3.08.01	Yes
	GSDML-V2.41-HMS-CompactCom 40_FO_ADIMAP_BOARD_IO-20210914.xml		
	GSDML-V2.41-HMS-CompactCom 40_FO_ADIMAP_SEPARATE_16-20210914.xml		
	GSDML-V2.41-HMS-CompactCom 40_FO_ADIMAP_SIMPLE_16-20210914.xml		
	GSDML-V2.41-HMS-CompactCom 40_FO_ADIMAP_SPEED_EXAMPLE-20210914.xml		
POWERLINK	0000001B_AnybusCompactCom40EthernetPOWERLINK_ADIMAP_BOARD_IO.xdd	7077_3.08.01	Yes
	0000001B_AnybusCompactCom40EthernetPOWERLINK_ADIMAP_SEPARATE_16.xdd		
	0000001B_AnybusCompactCom40EthernetPOWERLINK_ADIMAP_SIMPLE_16.xdd		
	0000001B_AnybusCompactCom40EthernetPOWERLINK_ADIMAP_SPEED_EXAMPLE.xdd		
EtherNet/IP stc/soc file	CompactCom40_SpeedExample.soc	7077_3.08.01	Yes
	CompactCom40_SpeedExample.stc		
EtherCat	HMS Industrial NetworksESI_ADIMAP_ALLTYPES.xml	7077_3.08.01	No
	HMS Industrial NetworksESI_ADIMAP_BOARD_IO.xml		
	HMS Industrial NetworksESI_ADIMAP_SEPARATE_16.xml		
	HMS Industrial NetworksESI_ADIMAP_SIMPLE_16.xml		
	HMS Industrial NetworksESI_ADIMAP_SPEED_EXAMPLE.xml		



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- '8041' refers to the ABP header files in the "abcc_abp" directory. Those header files contains ABCC-related constants, type definitions and similar, which are used in the ABCC firmware, and in the driver and application client in the ABCC example code.
Note: Additions here does not imply that any corresponding code also has been added in the ABCC driver or application client.
 - '7075' refers to the ABCC application interface drivers and the corresponding middle-level code in the "abcc_drv" directory. Those files contains interface drivers for the parallel, SPI and UART interfaces, the message buffering system, etc.
 - '7077' refers to the example application client, the corresponding example application-side object files, and the different porting examples based on those.



Reason for release:

- Maintenance fixes.
- Added ports for the ST NUCLEO-H743ZI2 board, with CubeIDE/IAR compilers.

Compatibility:

Example code 3.08 requires application driver version 5.08 or later, and ABP version 7.79 or later. Both are included.

No existing API calls has been modified. This version shall be call-compatible with the previous 3.x versions.

How to upgrade from previous versions:

The following directories and its subdirectories can be replaced.

- abcc_drv
- abcc_abp

The following directories and its subdirectories can be replaced if no changes has been made in your local version. If local changes has been made those changes needs to be manually merged into the new files.

- example_app
- abcc_obj

The following directories need to be merged with your local version.

- abcc_adapt

Known limitations:

See separate errata document.

Verified platform support:

The driver and example code has been verified using the following combinations:

Platform endian	Network endian	Platform byte size	Interrupt	Operating mode	Test covered
Little	Little	8 bit	Off	Serial	X
				SPI	X
				Parallel8	X
				Parallel8 ping-pong	X
				Parallel16	X
			On	Parallel8	X
				Parallel8 ping-pong	X
				Parallel16	X
		16 bit	Off	Serial	
				SPI	
				Parallel8	
				Parallel8 ping-pong	
				Parallel16	
			On	Parallel8	



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Platform endian	Network endian	Platform byte size	Interrupt	Operating mode	Test covered
	Big	8 bit	Off	Parallel8 ping-pong	
				Parallel16	
				Serial	
				SPI	
				Parallel8	
				Parallel8 ping-pong	
				Parallel16	
			On	Parallel8	
				Parallel8 ping-pong	
				Parallel16	
		16 bit	Off	Serial	
				SPI	
				Parallel8	
				Parallel8 ping-pong	
				Parallel16	
			On	Parallel8	
				Parallel8 ping-pong	
				Parallel16	
Big	Little	8 bit	Off	Serial	
				SPI	
				Parallel8	
				Parallel8 ping-pong	
				Parallel16	
			On	Parallel8	
				Parallel8 ping-pong	
				Parallel16	
		16 bit	Off	Serial	
				SPI	
				Parallel8	
				Parallel8 ping-pong	
				Parallel16	
			On	Parallel8	
				Parallel8 ping-pong	
				Parallel16	
	Big	8 bit	Off	Serial	
				SPI	
				Parallel8	
				Parallel8 ping-pong	
				Parallel16	
			On	Parallel8	



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Platform endian	Network endian	Platform byte size	Interrupt	Operating mode	Test covered
		16 bit	Off	Parallel8 ping-pong	
				Parallel16	
				Serial	
				SPI	
				Parallel8	
				Parallel8 ping-pong	
			On	Parallel16	
				Parallel8	
				Parallel8 ping-pong	
				Parallel16	
				Parallel8	
				Parallel8 ping-pong	

Updated in version 3.08:

Changes made in the ABP header files. Note that additions here may not include corresponding code additions to the interface driver (7075) or application client (7077) code directories. There may also be additions here that are not related to the driver and application client.

Title	Affected component	Category	Description	Issue(s)
Add OPC UA Method Call function	ABP	New functionality	OPC UA Method Call function added to abp_opcua.h	A8041-110
Add new exception code "Invalid config file in file system"	ABP	New functionality	Added new exception code "Invalid configuration file in file system" (0x0E)	A8041-108
Add new OPC UA model "APPLICATION"	ABP	New functionality	Defined new OPC UA model "APPLICATION" in ABP_OpcuaModelType. This model will enable the application-defined information model feature in the CompactCom 40 IIoT Secure modules.	A8041-109
Missing data size define for WebDAV attribute value in abp_etn.h	ABP	New functionality	Added data size define for WebDav attribute value in abp_etn.h	A8041-104
Add CC-Link IE TSN network type define	ABP	New functionality	Added define for CC-Link IE TSN network type	A8041-105
Add definitions for the "Time" object	ABP	New functionality	Added definitions for the Anybus "Time" object	A8041-107

Changes made in the interface driver (7075). Corresponding changes has been made in the application client (7077) when applicable.

Title	Affected component	Category	Description	Issue(s)
AbpIntStatusToAbccIsrEvent() is conditional	Application driver	Bug fix	AbpIntStatusToAbccIsrEvent() should only be compiled when ABCC_CFG_INT_ENABLED is TRUE. #if(ABCC_CFG_INT_ENABLED) has been added around the function.	A7075-139
Ping pong and SPI mode sometimes ignored ABCC_TriggerWrPdUpdate()	Application driver	Bug fix	The flag abcc_fDoWrPdUpdate was cleared even if the driver was in a state where it couldn't update the WrPd buffer.	A7075-205
link_iMaxMsgSize in abcc_link.c was not set up correctly	Application driver	Bug fix	ABCC_GetMessageChannelSize() is now called to get the correct interface-level max message size instead of basing this size only on the module ID.	A7075-207
Resolved compiler warnings	Application driver	Bug fix	Resolved ABCC driver compiler warnings related to unused functions/variables, and potential use of uninitialized variables as reported by MSBuild /W4 compiler setting. Resolved various warnings related to debug printing on 16-bit char platforms as reported by Code Composer Studio.	A7075-211
Cleanup of extern declarations	Application driver	Improved functionality	The 'extern' declarations has been cleaned up. A new 'EXTVAR' macro for external variable declarations has also been added.	A7075-219
Moved the UART timeout definitions to abcc_drv_cfg.h	Application driver	Improved functionality	The UART telegram cycle timeout times has been moved from "abcc_serial_drv.c" to "abcc_drv_cfg.h" to allow for easier tweaking of the timeout times when this is needed.	A7075-225 A7075B-6



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Title	Affected component	Category	Description	Issue(s)
"ABCC_CFG_DRV_CMD_SEQ_ENABLE" has been added to "abcc_cfg.h".	Application driver	Other change	The ABCC_CFG_DRV_CMD_SEQ_ENABLE define is now described in "abcc_cfg.h".	A7075-228

Changes made in the application client (7077). Corresponding changes has been made in the interface driver (7075) when applicable.

Title	Affected component	Category	Description	Issue(s)
ABP_BOOL limits corrected	Example code	Improved functionality	The default properties (min/max/def) for ABP_BOOL in ad_obj.c has been corrected.	A7077-10
Packing macros has been added to the official ports	Example code	Bug fix	Compiler/platform-specific definitions for the ABCC_SYS_PACK_ON, ABCC_SYS_PACK_OFF and PACKED_STRUCT has been added to the official ports. Examples has been added to the Generic port	A7077-266
DeviceNet object Attribute 21 and 22 were missing in abcc_obj_cfg.h	Example code	New functionality	Added support for Attribute 21 and 22 in the DeviceNet host object.	A7077-277
In 16 bit char mode: problems viewing STRUCT ADIs on webpage	Example code	Bug fix	The ABCC_PORT_StrCpyToNativeImpl() and ABCC_PORT_StrCpyToPackedImpl() has been replaced. Previously the offset argument was not handled properly when non-zero. This caused the fetching of element name strings for a struct ADI to fail.	A7077-291
dvp1.c some code did not take ABCC_SYS_16_BIT_CHAR into consideration	Example code	Bug fix	The data copy functions associated with the PrmData and CfgData attributes in the Profibus host object was not the right ones. ABCC_PORT_MemCpy() has been replaced with ABCC_PORT_StrCpyToPacked()	A7077-355
Misleading name for the ABCC power on/off define	Example code	Other change	Corrected the 'option board' power defines for the STM3240G-EVAL ports. The option board power is controlled by the mainboard LED1 output, and most definitions had this named as "RST". This has been replaced with "PWR".	A7077-382
Support for ADI data type DOUBLE has been added.	Example code	New functionality	Support has been added for the ABP_DOUBLE (64-bit floating point) data type. A new enable/disable define (ABCC_CFG_DOUBLE_ADI_SUPPORT) has been added to "abcc_drv_cfg.h" for this.	A7077-385
The example code build scripts has been updated to not overwrite port-specific files.	Example code	Bug fix	The Windows port now has the correct porting of abcc_time.c	A7077-400



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Title	Affected component	Category	Description	Issue(s)
The Ethernet MAC address defines has been updated and corrected.	Example code	Bug fix	The ABIP port (linux_xilinx_arm) requires the application to supply MAC address values, but this had not been set up correctly. When the Ethernet Host Object was enabled hard-coded MAC addresses would also be silently included in all ports. The "abcc_obj_cfg.h" and "abcc_identification.h" has been updated, and the MAC address attributes are no longer enabled by default. The linux_xilinx_arm-specific hard-coded MAC addresses has been moved to its local "abcc_platform_cfg.h". The PROFINET-related PORT1 and PORT2 MAC address values has also been moved to "abcc_identification.h" as they can be considered as identity-related settings. The example MAC address values here has also been changed to make use of the Universal/Local bit.	A7077-426
16 bit char incompatibility in bac.c	Example code	Bug fix	Wrong MsgData access macro was used in bac_ObjectCommandGetAllBacnetObjInstances() in bac.c. ABCC_SetMsgData8() should be used instead of ABCC_SetData8().	A7077-433
Instance attribute #25 is not present in the Ethernet host object.	Example code	New functionality	Added support for attribute #25 (WebDAV Enable) in the Ethernet Host object.	A7077-436
Update PROFINET GSD file versions	Example code	Improved functionality	Upgraded GSD-files for PROFINET to version 2.41.	A7077-437
Wrong 'sizeof' defined used in bac.c	Example code	Bug fix	Correction in ".\abcc_obj\nw_obj\bac.c" 'ABP_SIZEOF_UINTx' replaced with 'ABP_UINTx_SIZEOF'	A7077-438
No sanity check for 'ad_iNumOfADIs == 0' in GetAdiIndex().	Example code	Bug fix	Sanity check for 'zero number of ADIs' has been added to GetAdiIndex() in abcc_setup.c and ad_obj.c.	A7077-439
Add support for SII related attributes	Example code	New functionality	Added support for ABP_ECT_IA_SII_ORDER_NUM and ABP_ECT_IA_SII_DEV_NAME attributes.	A7077-440
Add support for PDO assignment attributes	Example code	New functionality	Added support for ABP_ECT_IA_DEF_TXPDO_ASSIGN and ABP_ECT_IA_DEF_RXPDO_ASSIGN attributes.	A7077-441
Add support "Max assembly mappings" instance attribute	Example code	New functionality	Added support for the ABP_ASM_IA_MAX_NUM_ADI_MAPS attribute.	A7077-442
Resolve compiler warnings	Example code	Bug fix	Resolved various compiler warnings pertaining to casting, unused functions, and potentially uninitialized variables as reported by MSBuild /W4 compiler setting.	A7077-443
etn_obj.h: wrong comment	Example code	Bug fix	Corrected the description for ETN_GetIpConfig() in etn_obj.h	A7077-445
ETN-OBJ: add API function to read Network Status	Example code	New functionality	ETN_GetNwStatus() has been added to etn_obj.c, it returns the value of the etn_iNetworkStatus variable which holds the 'network status' attribute bitmask from the ABCC.	A7077-446



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Title	Affected component	Category	Description	Issue(s)
abcc_sw_port.h must include abcc_drv_cfg.h	Example code	Bug fix	"abcc_sw_port.h" now includes "abcc_drv_cfg.h". This is required for 64-bit ADI support to work out-of-the-box..	A7077-448
etn_obj.h: "extern" used instead of "EXTFUNC"	Example code	Improved functionality	The 'extern' declarations has been cleaned up. A new 'EXTVAR' macro for external variable declarations has been added.	A7077-452
"ABCC_CFG_DRV_CMD_SEQ_ENABLE" added to abcc_drv_cfg.h	Example code	Improved functionality	"ABCC_CFG_DRV_CMD_SEQ_ENABLE" has been added to "abcc_drv_cfg.h."	A7077-456 A7077-457
Sanity checks added to the ABP data type lookup functions	Example code	Improved functionality	The ABCC_GetDataTypeSize(), GetDefaultProperties() and checkMinMax() has been modified to warn if a lookup is made for an illegal or non-supported data type.	A7077-466
Use the ABP_OpcuaModelType for the OPCUA_IA_MODEL_VALUE	Example code	Improved functionality	Using the ABP_OpcuaModelType for the OPCUA_IA_MODEL_VALUE in abcc_obj_cfg.h.	A7077-468
Example typedefs for xINT64 and DOUBLE are missing from the Generic abcc_td.h	Example code	Improved functionality	Example typedef for FLOAT64, INT64, UINT64 has been added to 'Generic' port abcc_td.h, this was missing.	A7077-469
Update the EIP SOC file for CT18.1	Example code	Other change	Enabled attribute 30 in the CIP Identity object to be compliant to ODVA conformance test version CT18.1.	A7077-471
Use the ABP_MqttModeType for the MQTT_IA_MODE_VALUE	Example code	Improved functionality	Using the ABP_MqttModeType for the MQTT_IA_MODE_VALUE in abcc_obj_cfg.h.	A7077-472
Hex dump printouts for messages, SPI and UART has been added. CRC error counter for SPI and UART has been added	Example code	New functionality	Hex dump function has been added to ease debugging of message, SPI, and UART transactions. A CRC error counter for debug purposes has been added to "abcc_debug_err.c" for the SPI and UART drivers.	A7077-482
Port for the ST NUCLEO- H743ZI2 board has been added.	Example code	New functionality	Two new ports has been added for the ST NUCLEO- H743ZI2 board, and the CubeIDE or IAR EWARM compilers. Both of those ports assumes that the HMS M00765 adapter board (HMS article number 024620) is used, which is available from HMS.	A7077-483
Placeholder for the OPC UA Method_Call command	Example code	New functionality	A section has been added to the "opcua_obj.c" where a call to a higher-level function should be placed. Note that the "opcua_obj.c" presently does not do any processing of a Method_Call command.	A7077-480 A7077-481
64-bit ADI:s are now supported by the two STM3240G-EVAL ports	Example code	Improved functionality	Added 64-bit type definitions to "abcc_td.h", and enabled ABCC_CFG_64BIT_ADI_SUPPORT and ABCC_CFG_DOUBLE_ADI_SUPPORT in "abcc_drv_cfg.h".	A7077B-20



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Updated in version 3.07:

Title	Affected component	Category	Description	Issue(s)
Malplaced define	Application driver	Other change	The ABCC_CFG_STARTUP_TIME_MS define has been moved to abcc_drv_cfg.h.	A7075-204
Add 'General Synchronization Error' to H_APPSTATUS	ABP	Improved functionality	General Synchronization Error status code added to H_APPSTATUS	A8041-98
Add new command for getting object access from host	ABP	New functionality	Added new command to the EtherCAT Host Application Object for overriding Object Access in Entry Description Requests.	A8041-99
Add assembly mapping instance attribute 14 to abp_asm.h	ABP	New functionality	Added assembly mapping instance attribute 14 (Max number of ADI mappings) to abp_asm.h	A8041-100
Add definition for Get_Enum_Data and Get_Data_Type command to ECT host object	ABP	New functionality	ABCC40-ECT only: Add Get_Enum_Data and Get_Data_Type command to abp_ect.h	A8041-103 A8041-102
SEMI Addon: Error responses are incorrectly formatted and firmware update memory corruption	Example code	Bug fix	Fixed error response formatting for SEMI Addon. Fixed memory corruption issue in firmware update for SEMI Addon.	A7077-421 A7077-422
Occurence of nullptr dereferencing in asm_obj.c	Example code	Bug fix	Fixed memory corruption for dynamic mapping in asm_obj.c.	A7077-419
Add support for attribute #32 (CIP Sync) in the EtherNet/IP host object	Example code	New functionality	Added support for attribute #32 (CIP Sync enable) in the EtherNet/IP host object (F8h).	A7077-417
Add missing attributes in the Application Object	Example code	New functionality	Added support for attributes #7-#11 in the Application Object (FFh).	A7077-414
Implement new OPC UA host object attribute 'Limits'	Example code	New functionality	Support for instance attribute 'Limits' (#7) of the OPC UA host application object.	A7077-409
Add EtherCAT ESI configuration files for the examples	Example code	Improved functionality	Added ESI files for ADI mapping examples.	A7077-407
Add POWERLINK XDD configuration files for the examples	Example code	Improved functionality	Added XDD files for ADI mapping examples.	A7077-401
ANB_FSI_OBJ_ENABLE was defined at wrong location	Example code	Other change	ANB_FSI_OBJ_ENABLE has been moved to a separate section in abcc_abj_cfg.h since it controls an ABCC-side object, not an application-side object.	A7077-399
Add EtherNet/IP stc file	Example code	Improved functionality	Added STC-file for the Speed/RefSpeed ADI mapping example.	A7077-336
SEMI Addon: Fixed ADI order in entrylist	Example code	Bug fix	APPL_TIMESTAMP_ADI_NR and APPL_MAN_BL_VER_ADI_NR was not in the correct order. Entrylist need to be a sorted list.	-

Updated in version 3.06:

Title	Affected component	Category	Description	Issue(s)
Set_Attribute data validation for ADIs	Example code, Application driver	New functionality	Added support for handling Set_Attribute and Set_Attribute_Indexed towards an ADI Value attribute in a transparent way, giving the application the possibility to e.g. return an error code if the set data is invalid in some way. This functionality is optional and is enabled by setting a configuration define.	A7077-238, A7077-359, A7075-183, A7075-196
Macros in appl_adimap_asm.c	Example code	Bug fix	Corrected macros in appl_adimap_asm.c.	A7077-351, A7077-369
CANopen host application object	Example code	New functionality	A new attribute (17, Read PD buffer initial value) has been added to the CANopen host application object.	A7077-358
Non-volatile ADIs	Example code	New functionality	Added support for attribute 13 on the application data object, "Number of non-volatile instances as well as support for list type 0x04 (All non-volatile parameter ADIs) for the Get_Instance_Numbers command on the application data object.	A7077-370
Data length validation	Example code	Improved functionality	The data length supplied in Set_Indexed_Attribute towards the ADI Value attribute is now validated and an error code is returned if too little or too much data is supplied.	A7077-371
Dynamic assembly mapping instances	Example code	New functionality	Dynamic assembly object instances are now supported by the starter kit.	A7077-372
Native to and from packed UINT8 arrays	Example code	New functionality	Added functions for copying native UINT8 arrays to and from packed octet strings.	A7077-376
16 bit node address	Example code	New functionality	It is now possible to enable functionality for setting the node address as a 16 bit value using APPL_SetAddress().	A7077-381
Get_Instance_Numbers sanity check	Example code	Improved functionality	Sanity checks have been added for the ABP_APPD_GET_INSTANCE_NUMBERS command.	A7077-391
PROFINET host application object	Example code	New functionality	Added support for new attributes #28 and #29 in the PROFINET object.	A7077-394
Default ADI values	Example code	Improved functionality	Reading application data object instance attribute "Default value" now returns the default value of the data type if a default value has not been explicitly defined for the ADI.	A7077-396
File system interface objects	Example code	New functionality	Added support for Anybus and Application file system interface objects. This functionality is disabled by default and can be enabled using configuration defines.	A7077-397
Aborting a message sequence	Application driver	Bug fix	Aborting a message sequence now works properly.	A7075-179
API documentation update	Application driver	Improved functionality	Updated the function list comments in abcc.h. Added missing functions to the summary in the abcc_sys_adapt.h file header.	A7075-181, A7075-186, A7075-193
Byte swapping	Application driver	Bug fix	Byte swap was missing when converting message size from ABCC40 to ABCC30 header format. Required for big-endian systems.	A7075-187



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Title	Affected component	Category	Description	Issue(s)
Bit mask usage	Application driver	Bug fix	C-bit bitmask was incorrectly used when testing for possibility to send command messages. The bitmask should be applied to the value being returned from GetLowAddrOct(), not to the value passed to it.	A7075-188
ABP header files	ABP	Improved functionality	Updated included ABP header files to the latest released version.	A8041-83-89 A8041-93-97
Network configuration files	Example code	New functionality	Added example network configuration files for CANopen, PROFIBUS, PROFINET and PROFINET FO.	-
SEMI device profile	Example code	New functionality	A new example application implementing the EtherCAT SEMI device profile is now available as a separate add-on from HMS. Contact HMS for more information.	-



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Updated in version 3.05:

Title	Affected component	Category	Description	Issue(s)
MQTT support	Example code	New functionality	Added support for MQTT host object (0xE2) MQTT publish Single ADI datasets MQTT publish Assembly Mapping datasets MQTT publish Transparent datasets	A8041-82 A7077-307 A7077-308 A7077-308
Data notification support	Example code	New functionality	Support for Anybus message "Data Notification Requests" enabling data indications triggered by the host application. Single ADI values, Assemblies and transparent data is supported.	A7077-338
Response segmenation	Driver	New functionality	Added support for segmented response messages.	A7075-184 A7077-322
Data types	Driver/ Example code	New functionality	The Embedded starter kit now supports the BOOL1 data type. The ABCC application driver now supports the BOOL1 data type.	A7077-302 A7075-178
EtherCAT	Example code	New functionality	Error counters for synchronization monitoring on EtherCAT can now be enabled in the embedded starter kit. Added SII Order Number and SII Device Name attributes to abp_ect.h.	A7077-303 A8041-80
Sync object	Example code	New functionality	Added Application Cycle Factor attribute to abp_sync.h.	A8041-81
Windows port	Example code	New functionality	Windows port: Added a function to set a hard coded Transport Provider PathID without having to select PathID for every run.	A7077-339
Message interface	Driver	New functionality	New interfaces to set/get the message header fields CmdExt0, CmdExt1, Datasize and Instance has been added. Added interface for reading message channel size (ABCC_GetMessageChannelSize)	A7075-155 A7075-180
Ethernet object	Example code	Bug fix	Added attribute 18 and 20-24 in the Ethernet object.	A7077-276
Minor fixes and cosmetic changes	Example code	Bug fix	abcc_platform_cfg.h's description to include abcc_drv_cfg.h Missing \n in debug messages	A7077-269 A7077-304



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Updated in version 3.04:

Title	Affected component	Category	Description	Issue(s)
OPC UA	Driver/ Example code	New functionality	Added support for OPC UA host object (0xE3)	19022
IP configuration	Example code	Bug fix	Netmask gateway and DHCP are now set correctly at startup when using hw switches	17041
Ethernet/IP	Example code	Bug fix	Added support for attribute 'Enable DLR' in the Ethernet/IP object	17800
PROFINET	Example code	Bug fix	Added support for attribute 24-27 in the PROFINET object	18055
EtherCAT	Example code	Bug fix	Added support for attributes 16-19 in the EtherCAT object	15432 18054
ADI mapping	Example code	Other change	Added comment about how to define the ADIs during runtime in appl_adi_config.h	18675
Operating mode	Driver	Improved functionality	Size assert added to check for > 256bytes of PD in serial and 8 bit parallel operating mode	18943
AD_AdiEntryType	Example code	Other change	Add information that bDataType is ignored for structs in AD_AdiEntryType	17398
Compiler issues	Driver	Improved functionality	Add PACKED directive to serial telegram structures	16044
Example ADI config	Example code	Bug fix	Set correct bits in "APPL_NOT_MAP_READ_ACCESS_DESC"	18213
Debug printouts	Example code	Improved functionality	Added firmware version to debug printouts Added the debug printouts to the MicroZed port. Added the debug printouts to the linux port.	14899 18043 17030
Descriptions and cosmetic changes	Driver/ Example code	Other change	"ABCC_DataFormatType" moved to abp.h Corrected text for attribute 16 in the Ethernet object Renamed "ABCC_CbfAnbStatusChanged()" to "ABCC_CbfAnbStateChanged()" and corrected comments Corrected description in comment about attribute 16 in Ethernet Object (0xF9) Comments about the operating modes has been extended. Fixed misleading define names in ad_obj.c Change ADI name for ADI #34 and #35 in appl_adimap_alltypes.c Removed obsolete pragma from windows port Fixed casting issues Use abp.h float min/max values Improved error handling in command sequencer	18570 17688 16598 16253 15578 16028 18442 17358 12478 17320 19008



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Updated in version 3.03:

Title	Affected component	Category	Description	Issue(s)
Network host object support	Example code	New functionality	Added support CC-Link object (CCL) and CC-Link IE Field object (CFN).	17287
64 bit ADI:s	Driver/ Example code	Bug fix	Fixed compiler issues related to ABCC_CFG_64BIT_ADI_SUPPORT. 64 bit ADI support default enabled in windows port. For other platforms UINT64 and INT64 need to be defined in abcc_td.h if enabled.	16977
Parallel ping pong opmode	Driver	Bug fix	Fixed possible race condition when using interrupt.	17184
Windows serial adaption	Example code	Improved functionality	More robust implementation of ABCC_SYS_SerSendReceive() and ABCC_SYS_SerRestart().	15885
Process data mapping	Driver/ Example code	Improved functionality	The 'ADI index' is checked for illegal ADIs or index values during remapping and runtime use. The ADI PD descriptor bits are checked during a remap Added direction dependent error codes for process data mapping (ABCC_EC_ERROR_IN_READ_MAP_CONFIG and ABCC_EC_ERROR_IN_WRITE_MAP_CONFIG)	17504 17484 17824
Memcpy port	Driver/ Example code	Bug fix	Added protective parentheses in ABCC_PORT_MemCpy() macro.	17274
Compiler issues	Driver/ Example code	Bug fix	Removed parentheses in ABCC_SetCmdExt ABCC_SYS_SpiDataReceivedCbType pnDataReadyCb declared twice (STM ports) Missing argument for #ifndef ABCC_CFG_INT_ENABLED in generic part	17184 17275 17333
Descriptions and cosmetic changes	Driver/ Example code	Other changes	Corrected path reference to abcc_cfg.h in abcc_drv_cfg.h Missing line feed for PD debug print when leaving SETUP state. Added ABCC_CFG_PAR_EXT_BUS_ENDIAN_DIFF description in abcc_cfg. More descriptive comments for AD_IA_MIN_MAX_DEFAULT_ENABLE Wrong object 'value' in the comments in "abcc_obj_cfg.h" for Application Data Object 0xF5-> 0xFE	17690 17823 17256 16972 16973



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Updated in version 3.02:

Title	Affected component	Category	Description	Issue(s)
IAR workbench STM3240G	Example code	Bug fix	Sometimes the I2C IO expanders get stuck in the wrong state when the board reset in the middle of an I2C transaction. Incorrect starter kit version shown on display. Read process data must be processed in main loop context to avoid problem when updating display. Compiler issue for non-memory mapped systems. Missing files in IAR project. Possible buffer overrun when updating display in board	17189 17188 17192 17193 17186
DPV1 host object	Example code	Bug fix	Missing break in switch statement for set attribute command.	16931
General	Example code	Other change	Keil and IAR project folders renamed to STM3240G_Eval_Keil and STM3240G_Eval_IAR	17153



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Updated in version 3.01:

Title	Affected component	Category	Description	Issue(s)
Message sequencer.	Driver/ Example code	New functionality	Abcc_drv_version 5.0.03 included in this release supports a message sequencer interface (abcc_msg_seq_if.h). This is an alternative way of sending messages without having to implement a state machine for each step. The user is also relieved of allocating message buffers. Examples are found in appl_abcc_handler.c where for example ip address, node address, and baud rate are set using the sequencer. The old way of sending messages is still valid and can be used the same way as before.	15167
Support for element names in instructed ADIs.	Driver/ Example code	New functionality	Implemented Attribute # 10 (Element name) in the application data object and added support for naming structure elements in abcc_ad_if.h. This change is the reason for the major version update.	14889
Specific macros for external bus access	Driver/ Example code	New functionality	Some processors have different endian on the external bus compared to the CPU endian. New portable macros have been added to handle this	16280
IAR workbench for STM	Example code	New functionality	Included IAR workbench project for the STM platform in release	16703
Min/max check	Example code	Improved functionality	Min/max check for ADI implemented. Exceptions are char and bit data types. ADI property types (abcc_ad_if.h min/max/default) for 8 bit types do not need to be packed anymore for 16 bit char platforms. The property types can be used the same way as for 8 bit char platforms.	14447, 14236
Handle to large incoming messages	Driver	New functionality	Handle incoming messages if they are too big for buffer. Respond with "out of resource" if a command from the CompactCom is too big and notify the application (ABCC_EC_RCV_CMD_SIZE_EXCEEDS_BUFFER). Notify the application if a response from the CompactCom is too big (ABCC_EC_RCV_RESP_SIZE_EXCEEDS_BUFFER).	15575
Improved error handling	Driver/ Example code	New functionality	Improved error handling in driver. Added a new function to the API to read error information for the latest error. Debug and error macros are also available in driver api (abcc.h) to be used by application.	14026
linux-xilinx-arm safety object	Example code	New functionality	Added support for runtime enable of Functional safety object	16955
Simplified examples	Example code	Other change	Added new ADI example with "speed" and "refSpeed" as only mapped data. A new function in the adi example is added where the user can add cyclic ADI handling. (This will also be the default setting)	15082
Possible race condition in message handling	Driver	Bug fix	Possible race condition if message handling is done in interrupt context.	15219, 15115
Access permission checks when setting an ADI.	Example code	Bug fix	When setting an element of a struct using explicit messaging, the element specific descriptor was not considered. This is done now.	16731



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Title	Affected component	Category	Description	Issue(s)
Remap using serial operating mode	Driver	Bug fix	Read process data remap size changes had wrong timing when using serial operating mode.	15884
Correct SPI timing	Example code	Bug fix	SPI clock was set outside specification for the STM platform. Other platforms also checked and set to theoretical max	15430
Incorrect operating modes in windows abcc_drv_cfg.h.	Example code	Bug fix	Incorrect operating mode defines were used when ABCC_CFG_OP_MODE_GETTABLE was set to FALSE	16934
Sync measurement	Example code	Bug fix	Template calls a routine to reset a port pin to indicate that RdPd data has been copied to ADI:s and is ready to be used. This was missing before.	13253
STM3240G example code	Example code	Bug fix	Fixed STM startup problem. Sometimes the I2C IO expanders stuck in the wrong state when the board reset in the middle of an I2C transaction. Fixed compiler issue for non memory mapped system	15460, 16933
Process data size limited for 8/16 bit parallel operating mode.	Driver	Bug fix	Process data size was incorrectly limited to 255 bytes for the ABCC40 event operating mode if the ABCC30 parallel operating mode also was supported.	16597
Windows project	Example code	Bug fix	Windows project can now be built as release	15360
linux-xilinx-arm	Example code	Bug fix	Not possible to restart the Xilinx Linux port. Reset now ported correctly	15497
linux-xilinx-arm	Example code	Bug fix	Increased message buffer size	15256
linux-xilinx-arm	Example code	Bug fix	Register for hardware reset in xilinx/linux/arm is declared as volatile	15543
linux-xilinx-arm	Example code	Improved functionality	It is now possible to build Xilinx ARM port on Windows	15685
linux-xilinx-arm	Example code	Bug fix	Linux MII eth i/f stability problem has been fixed	15182
ABCC_PORT description	Example code	Other change	ABCC_PORT_CopyOctets() description has been added in abcc_port.h	14865
abcc_platform_cfg.h missing	Example code	Other change	abcc_platform_cfg.h was missing in generic release project	15193
Other changes	Driver/ Example code	Other change	Fixed compiler warnings abcc_versions.h is now used in STM printout Reference to identification.h in header of appl_adimap_sync.c has been corrected Corrected comment text for structures that had wrong ADI number Removed while(1) in windows system adaption	16600, 15243, 15664, 15544, 15624, 16932



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Updated in version 2.01:

Title	Category	Description	Issue(s)
Host object configuration	Other change	Enabling of host objects is moved from abcc_identification.h to abcc_obj_cfg.h. The abcc_obj_cfg.h is the only file that shall be included in the object host implementation files. Abcc_identification.h is included by the abcc_obj_cfg.h. The host objects are default DISABLED.	14903
Added Abcc_platform_cfg.h to adaption files.	New functionality	Possible to override default settings in abcc_identification.h and abcc_obj_cfg.h. This is flexible way to adapt the product configuration base on target platform specific needs. Just leave the file empty to have same functionality as before.	15084, 15103
linux-xilinx-arm: Linux MII eth i/f reconfiguration	New functionality	ETN host object enabled in abcc_platform_cfg.h. Support added to reconfigure Linux MII eth i/f whenever ABCC get a new IP configuration.	0015084, 0015103
linux-xilinx-arm: Serial number	Other change	The serial number attribute in the Application Object is enabled in abcc_platform_cfg.h. This is required for AnybusIP to work.	0014892
New host objects	Improved functionality	The following host object has a platform independent implementation and the possibility to be configured in abcc_obj_cfg.h and abcc_identification.h PROFIBUS DPV1 DeviceNet ModbusTCP EtherCAT CANopen	14826, 15133, 15132, 15134, 15137
Changed sync interface and configuration.	Improved functionality	A new section is added to configure sync in abcc_drv_cg.h . It is now possible to choose between the SYNC signal from the ABCC or the ABCC interrupt as sync interrupt source. An interface is added to the sys adaption layer to enable and disable the sync interrupt. The sync event now also has its own callback in abcc.h (ABCC_CbfSynIsr()). The sync event is no longer supported in ABCC_CbfEvent().	14902
Incorrect process data may be used.	Bug fix	When entering PROCESS_ACTIVE the received process data shall be valid. The driver reported new state to the application before the related data was delivered. This mean that for a short while invalid read process could be treated as valid.	14698
Removed nested critical sections	Improved functionality	Nested critical sections are removed in the driver. This will simplify the guidelines of when to implement or what to implement. The new guidelines are available in abcc_drv/inc/abcc_port.h	14698
Freescale P1025 starter kit	New functionality	A first version for the Freescale TWRP1025 board is released together with the SPI adapter board. The platform is big endian. The code has to be downloaded using a debugger.	14927,
Added support for setting baudrate in example application.	New functionality	If supported baudrate is set during user init state. If baudrate is changed the new baudrate is sent to the Anybus module. The interface is added in appl_abcc_handler.h.	15012



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Title	Category	Description	Issue(s)
Abcc_versions.h file added	New functionality	Abcc_version.h contains version define for starter kit example code, driver and abp. Both strings and major, minor and build defines are available.	
Node address and IP address are continuously updated in the sample application	New functionality	If the IP or node address changes due to HW switches the new value is reported to the Anybus module. The interface is added in appl_abcc_handler.h.	15012
ADI examples updated	Improved functionality	ADI descriptor flags are correctly set to reflect the example mapping direction. No ADI is mapped in both directions. All ADI:s in all examples has unique numbers.	14815
AD host object update	Bug fix	ADI sub element handling was incorrect. Added service "Get number of sub elements" When remap is done a write process data is triggered to update the process data according to the new map as soon as possible.	14742, 14493, 14686
STM3240G starter kit	Bug fix	Hex switch did not work correctly when the LEDs had been written on the same IO expander.	14758
Minor bug updates	Bug fix	Description missing in services list abcc_sys_adapt.h Wrong 16 bit char define in ADI example code. Did not compile/compiler warnings when all attributes are disabled in host objects.	14897, 15039, 14900



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Updated in version 1.02:

Title	Category	Description	Issue(s)
Sync supported	New functionality	Sync object added. Sync application example added. (abcc_adimap_sync.c)	0013756 0013702 0013252
Support for Powerlink host object	New functionality	Platform independent implmenation of powerlink host object added. Possibility to configure powerlink object in abcc_identification.h and abcc_obj_cfg.h.	0014442
Debug messaging	New functionality	Possibility to enable/disable message debugging supported in abcc_drv_cfg.h. #define ABCC_CFG_DEBUG_MESSAGING (TRUE/FALSE)	0010192
Added support for STM3240G starter kit	New functionality	Added support for STM3240G evaluation board.	0013755
Added support for Linux for Cortex A9 on Zedboard	New functionality	Added support Linux för ARM Cortex A9 on Zedboard interfacing Anybus-IP.	0014743

Bugs that are found in this software release should be reported back to HMS support department. Report product, software version, configuration, how to reproduce behaviour, and the effects of the bug.



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Updated in version 1.01 (related to previous SDK, version 3.03):

Title	Category	Description	Issue(s)
16 bit char	New functionality	16 bit char support added, has been verified on TI 2000 Piccolo platform (SPI opmode).	0013776
Big endian support	Improved functionality	Big-endian support added, has been verified on P1025 platform (SPI opmode).	0014278
File structure	Other change	New file structure: * Directory abcc_abp (Read only): - Includes all abp (Anybus protocol) files. * Directory abcc_drv (Read only): - ABCC 40 driver implementation * Directory abcc_adapt (Modified by user): - Includes all adaptation and configuration files for the driver and the objects. * Directory abcc_obj (Modified by user if needed): - Includes all Anybus host object implementations. * example_app (Modified by user if needed): Example application including: - Example code how to handle the abcc 40 driver	0013693 0013758
Example application	New functionality	A sample application using the driver (example_app/appl_abcc_handler.c) is provided with the following content: * Simple main loop interface. * Main state machine to handle init, restart, reset, exceptions and normal running states of the ABCC module * Implementation of required driver callback functions. * Message handling examples of how send message sequences to the ABCC.	0013249 0013250 0013245 0013227 0014141 0013981
Application data object	Improved functionality	Added support for bit data types and struct data types Re-wrote remap implementation Added Set/Get callbacks in AD object Use instance instead of index in default map structure Default/Min/Max values in AD object Use abcc_sw_port.h macros to copy ADI Three ADI mapping examples are provided (sample_app/appl_adi<x>.c)	0013228 0013494 0013943 0014152 0013942
Application host objects	Improved functionality	Implemented EtherNet/IP host object Implemented PROFINET host object Implemented application host object Implemented ethernet host object	0013944 0013703 0014279
Configuration	Other change	Added configuration options for network host objects: abcc_adapt/abcc_identification.h: Includes parameters for each object that must be changed by the user. They are all related to how the device is identified on the network abcc_adapt/Abcc_obj_cfg.h. All parameters that are not already in abcc_identification.h are configured in this file but they are all default disabled.	0013945



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Title	Category	Description	Issue(s)
Platform porting	Other change	Migrated abcc_user_def.h to abcc_drv_cfg.h Added macro for 16 char bit copy A default platform porting implementation required by the driver is found in abcc_adapt/abcc_sw_port.h. This porting may be optimized by the user. A generic project is provided together with a readme file to get started with the user hardware. A transport provider adaption is also provided for customers with USB board.	0013707 0013680 0013710 0013708
Minor fixes	Bug fix	Corrected parameter type in function definition of ABCC_CbfDriverError Encourage people to use unique MSGIDs whenever a new message is sent	0013241 0013236
Version handling	Improved functionality	Each file will now contain a header with the version of sample application, ABCC 40 driver and ABP code.	0014034

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