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Title :	Release-Notes			



Product :	FETK-T3.0			
Title :	Release Notes			
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TTNR :	FETK-T3.0A F-00K-111-436			
Comments :	Current shipped hardware state: D012/01 Current released firmware version: HSP 14.2.0			
Created:	Name M. Higgins	Department NE/EHE3	Signature M. Higgins	Date 2024-09-24
Released:	Name R. Shaddach	Department NE/EHE3	Signature R. Shaddach	Date 2024-09-24

Changes

Revision	Description	Date	Name	Signature
01	Initial Release	2019-06-25	M. Higgins	M. Higgins
02	Updated HDC with HSP 11.14. Additional μ Cs supported.	2019-09-24	M. Higgins	M. Higgins
03	Updated HDC with HSP 11.15	2019-12-17	M. Higgins	M. Higgins
04	Updated HDC with HSP 12.0.0	2020-03-31	M. Higgins	M. Higgins
05	Updated HDC with HSP 12.1.0. Additional μ Cs supported.	2020-06-25	M. Higgins	M. Higgins
06	Updated CPLD with HSP 12.3	2020-12-15	M. Higgins	M. Higgins
07	Updated HDC with HSP 12.5	2021-06-29	M. Higgins	M. Higgins
08	Updated HDC with HSP 13.0.0	2022-03-29	M. Higgins	M. Higgins
09	Updated HDC with HSP 13.0.1	2022-05-17	M. Higgins	M. Higgins
10	Updated HDC with HSP 13.1.0. Additional μ Cs supported.	2022-06-28	M. Higgins	M. Higgins

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11	Updated HDC with HSP 13.2.0. Updated hardware to D012/01.	2022-09-27	M. Higgins	M. Higgins
12	Updated HDC with HSP 13.3.0.	2022-12-13	M. Higgins	M. Higgins
13	Updated HDC with HSP 13.4.0.	2023-03-28	M. Higgins	M. Higgins
14	Updated HDC with HSP 13.6.0	2023-09-15	M. Higgins	M. Higgins
15	Updated HDC with HSP 14.1.0	2024-06-25	M. Higgins	M. Higgins
16	Updated HDC with HSP 14.2.0	2024-09-24	M. Higgins	M. Higgins

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1 General Information

1.1 Safety Notice

Calibration activities influence the behavior of the ECU and the systems controlled by the ECU. This may result in unexpected behavior of the vehicle and thus can lead to safety critical situations. Only well trained personnel should be allowed to perform calibration activities.

1.2 System Requirements

The following minimum system prerequisites have to be met:

Required Hardware

- Intel Core-i7, 4. Generation (or higher), Quad Core
- Min. 16 GB RAM
- DVD-ROM drive (for installation)
- PCIe network adapter with Intel Chipset (no USB)
- Graphics with a resolution of at least 1024x768, 256MB RAM, 16bit color and DirectX 9

Required Operating System

- Windows® Vista SP1 (32bit) or higher,
- Windows® 7 SP1 (32 or 64bit*) or higher.
- Windows 8 (32 / 64 bit*)

*) INCA uses the 32bit compatibility mode on a 64-bit operating system.

Required Free Disk Space

- 250 MB (not including the size for application data)

The following system prerequisites are recommended:

Recommended Hardware

- Intel Core-i7, 4. Generation, Quad Core or equivalent
- 16 GB RAM
- DVD-ROM drive (for installation)
- PCIe network adapter with Intel Chipset
- Graphics with a resolution of at least 1280 x 1024, 1GB RAM, 32bit color and DirectX 9

Recommended Operating System

- Windows® 7 SP1 64bit (INCA uses the 32bit compatibility mode on a 64-bit operating system)

Recommended Free Disk Space

- >500 MB

1.3 Restrictions

WINDOWS® 95b, WINDOWS® NT, WINDOWS® 2000, WINDOWS® 98SE, and WINDOWS® XP are not supported

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1.4 Miscellaneous

To ensure the highest data throughput from the FETK device up to the PC system the following recommendations should be considered:

- Set power save mode to the highest level
- Disable virus scan
- Use network adapter for ETAS application only
- Update network adapter drivers

2 Version Syntax and Tool-Chain Information

2.1 Version-Syntax of the FETK-T3.0

The FETK-T3.0 hardware version information is located on the product sticker and can be read out of the FETK using the firmware update tool HSP or FETK Configuration Tool.

Hardware State Syntax: **abbb/cc**

Description (modification details refer chapter 5)

a	PCB Version (A=V1.0, B=V1.1, C=V1.2, ...)
bbb	PCB Hardware State (010, 011, 012, ...)
cc	PCB Population Variant (00, 01, 02, ...)

The FETK-T3.0 Firmware version information can be read out of the FETK using the firmware update tool HSP or XETK Configuration Tool. It is not printed onto a FETK sticker.

Firmware-Version Syntax: **aaa.bbb.ccccc**

Description (modification details refer chapter 5)

aaa	Major Release (0...255)
bbb	Minor Release (0...255)
cccc	Revision/Patch (0...65535)

Firmware Packages:

HDC Work	aaa.bbb.ccccc
HDC Boot	aaa.bbb.ccccc
CPLD	aaa.bbb.ccccc

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2.2 Version information of the tool-chain components

To get this FETK running with the other components of the tool-chain please make sure that the version mentioned below or a newer one is used. If your software-, firmware- or hardware version is older, please update it.

If you have any problems to get this FETK running please contact our local customer support or sales representative.

Updates or refreshes can be downloaded from the ETAS homepage:

<http://de.etasgroup.com>

<http://en.etasgroup.com>

2.3 Software and microcontroller support

The table reflects the initial versions which can be used with the FETK-T3.0A and the listed microcontroller.

Microcontroller	HSP	INCA	ETK Tools	ASCET-RP	INTECRIO
RH850_E2xFCC1_Rev1	11.13.0	V7.2.13	V4.1.14	V6.4	V4.6
RH850_E2xFCC2_Rev1	11.13.0	V7.2.13	V4.1.14	V6.4	V4.6
RH850_U2AEVA_Rev1	V11.14.0	V7.2.14	V4.1.15	V6.4	V4.6
RH850_E2x_Rev1	V12.1.0	V7.3.1	V4.2.1	V6.4	V4.6
RH850_P1xC_Rev1	V12.1.0	V7.3.1	V4.2.1	V6.4	V4.6
RH850_U2B24FCC_Rev1	V13.1.0	V7.4.1	V4.3.1	V6.4	V4.6

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3 What's New - Release Notes

This chapter lists the main improvements compared to a previous shipped FETK product. Additionally, a detailed list of already known issues can be found here.

3.1 New or Enhanced Functions

3.1.1 In INCA 7.5.2, HSP 14.2.0

Issue Identifier	Description
Feature: ETKPRG-2126	<p>Improved JTAG performance by 20% for Distab based measurement. Requires both INCA7.5.2 and HSP14.2.0 to have increased performance.</p> <p>Using this HSP version with older INCA versions results in the same performance as the past.</p> <p>Using this INCA version with older HSP versions will allow the user to potentially select too many measurement signals, resulting in a measurement overflow. Existing experiments usable with prior INCA versions remain useable with this INCA version.</p> <p>When using INCA 7.5.2 or higher, ensure the ETK is updated with HSP 14.2.0 or higher.</p>

3.1.2 In HSP 14.1.0

Issue Identifier	Description
Feature: ETKUS-3481	Ensure proper operation of 40MHz JTAG for microcontrollers specified with up to 17ns TDO max delay (U2A). Additionally update misc. timing constraints for TDO at 10/20/25 MHz

3.1.3 In HSP 13.6.0

Issue Identifier	Description
Correction of TFS #668695	The received DAQ timestamps was always 0 when measuring monitor variables in timer rasters. After updating to this version, the timestamps are now valid.

3.1.4 In HSP 13.4.0

Issue Identifier	Description
Correction of TFS #715475	The FETK-T3 downdate prevention is corrected. Please refer to "New or Enhanced Functions, In

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	HSP13.0" and "Known Issues, In HSP13.0 to HSP13.3" for further details on the corrected issue. After updating to this version, the user is not able to downgrade to older HDC versions using HSP.
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3.1.5 In HSP 13.3.0

Issue Identifier	Description
Feature: ETKUS-2395	Update Aurora status register to show individual lane status; formerly only overall link status was available.

3.1.6 In HSP 13.2.0

Issue Identifier	Description
Correction of TFS #690760	CRAM4 slave trace of the RH850 U2B24 is now possible, additionally requires INCA 7.4.2.

3.1.7 In HSP 13.1.0

Issue Identifier	Description
Correction of TFS #683538	FETK-T3 is now performing HW arbitration correctly during /RESETout events under all circumstances.
Correction of TFS #690223	FETK-T3 is always able to enter "deep standby" mode at temperatures above 100°C.
Feature: ETKPRG-929	Support of RH850 U2B24FCC microcontroller. Requires INCA 7.4.1.

3.1.8 In INCA 7.4.1, ETK Tools 4.3.1

Issue Identifier	Description
Feature: ETKPRG-929	Support of RH850 U2B24FCC microcontroller. Requires HSP 13.1.0.

3.1.9 In HSP 13.0.1

Issue Identifier	Description
Correction of TFS #684714	FETK-T3 is now able to use the setting "ContinueMeasurementOnOverflow = 1", which was not possible using HSP13.0.0.

3.1.10 In HSP 13.0.0

Issue Identifier	Description
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Feature: ETKPRG-878	FETK-T3 HDC is prepared for the upcoming hardware state D012/01. After updating to this version, the user is not able to downgrade to older HDC versions using HSP.
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3.1.11 In HSP 12.5.0

Issue Identifier	Description
Correction of TFS #653189	FETK-T3 is now recovering from high frequency ECU reset events caused by erroneous microcontroller software. User will now be able to run INCA ProF to reprogram the software. Also requires ES89x update with same HSP version to avoid continuous message boxes in INCA.
Correction of TFS #660951	With HSP12.4, many configuration features were not stored correctly in the serial flash. They were only restored with the ES89x connection.

3.1.12 In HSP 12.3.0

Issue Identifier	Description
Feature: ETKPRG-872	Enabled future updates to CPLD component via HSP. HSP was previously not able to update the FETK-T3 CPLD component.

3.1.13 In HSP 12.1.0

Issue Identifier	Description
Feature: ETKPRG-672	Support of enhanced RH850 halting sequence for flashing the microcontroller. <ul style="list-style-type: none"> - Requires updated ProF Control Flow (only to use new halting) - Only supported for RH850 E2x, U2A microcontrollers - Existing ProF Control Flows are still functional
Feature: n/a (ES89x FW)	Trace error handling improved when debugger port sharing is active. Trace decoder errors are no longer latched and are instead cleared after each occurrence.

3.1.14 In INCA 7.3.1, ETK Tools 4.2.1

Issue Identifier	Description
Feature: ETKPRG-673	Support of RH850 E2x (production) microcontrollers.
Feature:	Support of RH850 P1x-C microcontroller.

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ETKPRG-682	
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3.1.15 In HSP 12.0.0

Issue Identifier	Description
Correction of TFS #628211	JTAG access occurs up to 4 bytes beyond defined memory segments, potential to trigger ECC error.
Correction of TFS #631530	Potential for Aurora training to fail during first attempt, in particular setups at cold temperature.
Feature: ETKPRG-615	New feature "ContinueMeasurementOnOverflow", which allows a faster recovery in trace data after an overflow occurs. Enhancements to ETK Debugger Comm interface to provide: <ul style="list-style-type: none"> - Ability to detect if an XETK or FETK type is present - Ability to request the ETK to skip trace setup
Correction of TFS #629165	Lauterbach debugger unable to halt the microcontroller at the reset vector when used behind the FETK.
Correction of TFS#631417	Update default configuration of the features "EarlyTraceSetupWithReadyPattern" and "TraceOverrunCpuDelay" to match the XETK-S22.
Correction of TFS # 630806 (ES89x FW)	Measurement configuration not downloaded to ECU when using "Enhanced Coldstart" and switching between two measurement configurations which only differ by the trigger field entry.

3.1.16 In INCA 7.3.0, INCA 7.2.16

Issue Identifier	Description
Feature: ETKPRG-615	Enhancements to trace plugin to consider new ETK Debugger Comm interface bit 'ETK skip trace setup'. Requires HSP 12.0.0 or newer.

3.1.17 In INCA 7.2.15, HSP 11.15.0, ETK Tools 4.1.16

Issue Identifier	Description
Correction of TFS# 622755	HSP: Side affect when using "online bist mode" (JtagTrstMode = 0) when microcontroller goes through an application reset
Correction of TFS# 623473	INCA: INCA loses connection to FETK-T3 during ECU reset cycles
Correction of TFS# 624815	HSP: Debugger trace isn't starting after switching T32 into no debug mode

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Correction of TFS# 623070	HSP: INCA and XCT hex editors display wrong and different value than the debugger at the same address in ECU memory
New Feature, Jira: ETKPRG-487	INCA: Updates to trace resource sharing: trace windows are allocated in descending order, several registers are written via read/modify/write
New Feature, Jira: ETKPRG-487	HSP, XCT: Update to support debugger recognizing "power down BIST" mode
New Feature, Jira: ETKPRG-542	INCA, HSP: Updates and configuration features added to reduce coldstart timing with trace data acquisition.

3.1.18 In INCA 7.2.14, HSP 11.14.0, ETK Tools 4.1.15

Issue Identifier	Description
Correction of TFS# 619011	Update to ensure the ECU handshake is not missed in specific configurations when using the Lauterbach T32 in multi-core mode.
Correction of TFS# 617705	Updated FETK-T3 HDC to reduce JTAG data overflow when the Lauterbach debugger is used.
Correction of TFS# 620254	FETK-T3 configuration feature "StandbyPwrDownMode" is changed to "StandbyPowerDownMode" to be consistent with XETK-S22.
Correction of TFS# 621025	Hardware configuration feature "AuroraResetControlDisabled" is overwritten to the value "0 (No)" by the trace plugin. In some ECUs, this results in trace data acquisition failures and JTAG failures.
Correction of TFS# 619065	Updated XCT and INCA to support JTAG frequency of 25MHz, removed support for 30MHz.
Correction of TFS# 620577	Updated XCT memory ranges for E2x and U2A microcontrollers: data flash & extended data flash
New Feature, Jira: ETKPRG-396	Updates to support new microcontroller: RH850_U2AEVA_Rev1
New Feature, Jira: ETKPRG-397	FETK-T3 (ES89x) updated to support new feature "Enhanced Coldstart for Distab17"

3.1.19 In INCA 7.2.13, HSP 11.13.0, ETK Tools 4.1.14

Issue Identifier	Description
Feature TFS# n/a	FETK-T3.0A released

3.2 Known issues

3.2.1 In HSP 13.0 to HSP13.3

Issue Identifier	Description
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TFS #715475	The FETK-T3 downdate prevention is not implemented correctly in HSP13.0 to HSP13.3. It allows the user to put an older HSP version (HSP12.x) into the device which is not supported with certain HW states and results in a nonfunctional FETK-T3. To regain full functionalities for all FETK-T3 HW states, update the FETK to HSP13.0 or higher.
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3.2.2 In HSP 13.1.0

Issue Identifier	Description
TFS #690760	Unable to use CRAM 4 slave trace of RH850 U2B24.

3.2.3 In HSP 13.0.0

Issue Identifier	Description
TFS #684714	FETK-T3 is unable to use the setting "ContinueMeasurementOnOverflow = 1", a configuration error will occur using INCA or XCT.

4 Product Variants

The FETK-T3.0 can be purchased in only one variant, FETK-T3.0A. For complete details refer to the user guide.

The FETK-T3.0A provides a JTAG and Aurora Trace interface to connect to the Renesas RH850 family of microcontrollers. The Aurora Trace interface offers a higher measurement throughput rate; however, the interface is only available on specific microcontrollers.

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5 Hardware Modifications

5.1 General remarks to this chapter

Hardware issues or obsolete parts can make it necessary to modify the population of the FETK. The first released version, available modifications, and current version are listed below. For the version syntax please refer to chapter 2.1.

5.2 First delivered version

The hardware state **B010/01** is the first delivered version.

5.3 Changes from hardware state B010 to D012

The functionality of B010/01 is equivalent to D012/01. The D012 pcb has been updated to accommodate new footprints for components which have become obsolete. An upgrade from B010 to D012 is not necessary or possible.

5.4 Current delivery condition

The hardware state **D012/01** is delivered with all new shipments.

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6 Firmware Modifications

6.1 General remarks to this chapter

The programmable logic code within the FETK-T3.0 is stored onto programmable logic devices (FPGA, CPLD). The first released version and current version are listed below. For the version syntax please refer to chapter 2.1.

6.2 First delivered version

FPGA Work	1.9.21
FPGA Boot	1.3.2
CPLD	1.1.1

6.3 Current delivery condition

The following firmware versions will be programmed into all FETK-T3.0 shipments:

FPGA Work	1.20.12
FPGA Boot	1.3.2
CPLD	1.2.2

In case of any problems, the above-mentioned components can be programmed to the FETK by using **HSP V14.2.0**. This HSP version is similar to the currently delivered FETK products. Newer HSP versions could contain bug fixes and / or new features.

Attention: For updating the FETK with a later version by using the HSP Firmware update tool, all FETK - packages will be updated one after another and this will last a few minutes. Update of FPGA(boot) and CPLD are **not** done in a failsafe manner.

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7 Abbreviations

ASCET-RP	Rapid Prototyping Software of ETAS
FETK	Product (emulator test probe)
HDC	Software running on the FETK hardware; may be updated for new features or bug fixes
FPGA	F ield P rogrammable G ate A rray; interface component to the application hardware
Hot-fix	Software bug-fix for a refresh version
HSP	H ardware S ervice P ack; ETAS product which includes the firmware for the complete ETAS hardware, shipped together with INCA but also available as standalone product, download at ETAS homepage possible
INCA	Measurement and Calibration Software of ETAS
INTECRIO	Rapid Prototyping Software of ETAS
MC	M easurement & C alibration
PCB	P rinted C ircuit B oard
RP	R apid P rototyping
SBB	S ervice B ased B ypass
tool-chain	MC hardware (e.g. ES690) and software (e.g. INCA)
XETK Configuration Tool	Configuration Software, in order to configure a (X)ETK / FETK