

Product:	FETK-T1.1A	Rev :	20	Page 1 of 9
Title :	Release-Notes			

DRIVING EMBEDDED EXCELLENCE



Product :	FETK-T1.1A			
Title :	Release Notes			
File :	FETK-T1.1A_Release-Notes_V20.docx			
TTNR :	F-00K-110-882			
Comments :	<p>Currently shipped: 1111226A010/01</p> <p>FPGA-Boot version: V1.1.1 FPGA-A version: V1.22.6 Hardware-state: A010/01</p>			
Created:	Name R. Mai	Department DAP/XPC-Fe3	Signature R. Mai	Date 2022-11-18
Released:	Name A. Sprenger	Department DAP/XPC-Fe3	Signature R. Mai	Date 2022-11-18

Changes

Revision	Description	Date	Name	Signature
01	111156A010/01 - for FETK-T1.1A - Initial version	2017-11-23	Mai	Mai
02	1111614A010/01 - Bug fix [chapter 3.1 and 5.3]	2018-03-07	Mai	Mai
03	1111750B011/01 - FPGA Update and bug fix [chapter 3.1 and 5.3]	2018-06-22	Mai	Mai
04	1111823B011/01 - FPGA Update and bug fix [chapter 3.1 and 5.3]	2018-09-17	Mai	Mai
05	1111937B011/01 - FPGA Update and bug fix [chapter 3.1 and 5.3]	2018-11-21	Mai	Mai
06	11111017B011/01 - FPGA Update and bug fix [chapter 3.1 and 5.3]	2019-03-05	Mai	Mai
07	11111017B011/01 - New or Enhanced Functions [3.1]	2019-05-29	Mai	Mai
08	11111017B011/01 - New or Enhanced Functions [3.1]	2019-09-05	Mai	Mai
09	11111018B011/01 - FPGA Update and bug fix [chapter 3.1 and 5.3]	2019-12-05	Mai	Mai
10	1112011022B011/01 - FPGA Update and bug fix [chapter 3.1 and 5.3]	2020-02-03	Mai	Mai

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11	11111022B011/01 - FPGA Update and bug fix [chapter 3.1 and 5.3]	2020-02-21	Mai	Mai
12	101111310A010/01 - New or Enhanced Functions [3.1] and Firmware Modification [5.3]	2020-06-10	Mai	Mai
13	101111412A010/01 - New or Enhanced Functions [3.1] and Firmware Modification [5.3]	2020-09-17	Mai	Mai
14	101111626A010/01 - New or Enhanced Functions [3.1] and Firmware Modification [5.3]	2021-03-10	Mai	Mai
15	101111767A010/01 - New or Enhanced Functions [3.1] and Firmware Modification [5.3]	2021-09-17	Mai	Mai
16	101111822A010/01 - New or Enhanced Functions [3.1] and Firmware Modification [5.3]	2021-11-30	Mai	Mai
17	101111921A010/01 - New or Enhanced Functions [3.1] and Firmware Modification [5.3]	2022-02-25	Mai	Mai
18	101112015A010/01 - New or Enhanced Functions [3.1] and Firmware Modification [5.3]	2022-05-25	Mai	Mai
19	10111218A010/01 - New or Enhanced Functions [3.1] and Firmware Modification [5.3]	2022-09-16	Mai	Mai
20	10111226A010/01 - New or Enhanced Functions [3.1] and Firmware Modification [5.3]	2022-11-18	Mai	Mai

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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

To access the ECU the FETK-T1.1A has to be connected via ES89x modules.

The system can be used for high speed Measurement, Calibration and ECU flash programming with INCA. Support of ASCET / INTECRIO Rapid Prototyping applications e.g. functional prototyping – bypass depends on the functionality of connected modules. For supported tool versions refer to chapter 2.4. The FETK-T1.1A and ES89x system use the standardized protocol "XCP on Ethernet" for PC communication. Thus 3rd party tools can be connected to the ECU as well.

2 Version Syntax and Tool Chain Information

2.1 Version-Syntax of the FETK-T1.1A

The **FETK-T1.1A hardware version** information is located on the product sticker and can be read out of the FETK using the firmware update tool HSP or XETK Configuration Tool.

Overall Hardware Version Syntax: **aaabbbccdd/ee**

Description of PLD-Code Information (modification details refer chapter 3)

aaa FPGA-Boot-Code version (1.0.0, 1.0.1, 1.0.2, ...)
bbb FPGA-Code version (1.0.0, 1.0.1, 1.0.2, ...)

The hardware version of the PCB is also located on the label attached to the PCBs. These version is subordinate to the Overall hardware state cannot be read out by software.

PCB Hardware State Syntax: **deee/ff**

Description of Hardware-Information (modification details refer chapter 4)

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

The first delivered hardware state of the FETK-T1.1A is the following:

FETK-T1.1A: **111156A010/01**

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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 using HSP.

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 Hardware support

The FETK-T1.1A is supported by ES891.

2.4 Software and microcontroller support

Microcontroller	HSP	INCA	ETK Tools	ASCET-RP	INTECRIO
TC27x-ED C-Step ¹⁾	V11.7.0	V7.2.7	V4.1.0	V6.4.1	V4.6.1
TC29x-ED	V11.7.0	V7.2.7	V4.1.0	V6.4.1	V4.6.1

¹⁾ and higher versions (microcontroller steps) if they support the C-step specifications

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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 7.4.3 and HSP 13.3.0

Issue Identifier	Description
TFS 687725	Two HW reinites need for XCP measurement
ETKF-2141, ETKSW-3119	Add counter for how many resets watchdog disable should be active
ETKF-1901	Additional monitor variables for counting ECU resets

3.1.2 In INCA 7.4.2 and HSP 13.2.0

Issue Identifier	Description
TFS 687725	Two HW reinites need for XCP measurement
TFS 683889	INCA freezes on motor test bench sporadically
ETKPRG-1364	Execution of arbitrary ECU access sequences (Stabi)

3.1.3 In INCA 7.4.1 and HSP 13.1.0

Issue Identifier	Description
ETKPRG-1230	XCP use-case support: improve DISTAB17 memory distribution
TFS 681600	XCP Debugging with FETK-S1.1A/B and 3-Pin DAP does not work
TFS 682863	[INCA / FETK]:[TraceOverflow] - AGBT / ECU FIFO overflows are not recognized as such any more by INCA
ETKF-1755	TEA-MGR: Improve error message in case of FETK-T trace link error

3.1.4 In INCA 7.4.0 and HSP 13.0.0

Issue Identifier	Description
ETKF-1304	Drop support for TC27x A-step from sic_dap
ETKF-1776	Fix GET_STATE Trace Interface Status Values
ETKF-1792	Resource optimization: Investigate possible resource usage savings regarding internal debug logic
ETKF-1576	TEA-MGR: Support new XCP command XETK_CONF_WAIT_STATE

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3.1.5 In INCA 7.3.7 and HSP 12.7.0

Issue Identifier	Description
ETKF-1700	ARM SIC SIPL improvements
ETKF-1698	Remove legacy profiling and debug logicJIRA
ETKF-1679	'ATU: Error Injection'TFS
668695	Timestamp not correct for monitor variables in timer raster

3.1.6 In INCA 7.3.6 and HSP 12.6.0

Issue Identifier	Description
ETKF-1588	Implementation to measure bypass roundtrip time

3.1.7 In INCA 7.3.4 and HSP 12.4.0

Issue Identifier	Description
ETKF-1264	MAXWAIT - implement chosen solution
ETKF-1289	Disallow illegal DAP settings in hwcfg.lua (160MHz + 2-Pin-DAP)

3.1.8 In INCA 7.3.2 and HSP 12.2.0

Issue Identifier	Description
ETKF-1206; 627542	Support CPLD Update for all FETK-T1.x
ETKF-1027	Implement Concurrent XCP debugging and flashing for FETK-T1.1B
ETKF-1187	Performance Improvement overflows/bottlenecks for all FETK-T1.x
ETKF-1025; 623845	TEA MGR - Implementation of Handling host port disconnections in stacked ES8xx for all FETK-T1.x
ETKF-1016	Improve startup behavior of DAP for all FETK-T1.x

3.1.9 In INCA 7.3.1 and HSP 12.1.0

Issue Identifier	Description
ETKF-1104	Prevent issues when switching between DAP modes
ETKF-1022	Added monitor variables for EDE ingress profiling
ETKF-1064	Increased data size of Trace-FIFO to 4 KByte

3.1.10 In INCA 7.2.15 and HSP 11.15.1

Issue Identifier	Description
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629821	Support of configurable standby mode and additional normal sleep mode
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3.1.11 In INCA 7.2.15 and HSP 11.15.0

Issue Identifier	Description
n/a	Added monitor variables for analysis of ECU time alignment operation.

3.1.12 In INCA 7.2.14 and HSP 11.14.0

Issue Identifier	Description
ETKPRG-387	Support of standard XCP debugging

3.1.13 In INCA 7.2.13 and HSP 11.13.0

Issue Identifier	Description
n/a	Support of XCP Time Correlation

3.1.14 In INCA 7.2.12 and HSP 11.12.0

Issue Identifier	Description
603293	Higher current consumption
604175	High jitter of DAQ packets

3.1.15 In INCA 7.2.11 and HSP 11.11.0

Issue Identifier	Description
n/a	ECU time stamps for FETK-T1.1A/B
n/a	Support of FETK Alias name
n/a	Improve round trip time for FETK in combination with ES830 (Rapid prototyping)
601278	FETK-T1 reports Aurora link error and repeats AGBT initialization after ECU reset
603463	FETK sporadically generates wrong measurement values for trace raster
602059	ECU stays in reset after ECU boot if connected via ETAM8A
603201	Fixed physical address of some monitor variables to be outside of the memory area reserved for the trace mirror

3.1.16 In INCA 7.2.10 and HSP 11.10.0

Issue Identifier	Description
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583933	ES891 stucks in boot loop if wakeup and keep alive on FETK1 / GE activity is configured
593091	Access to ED RAM could fail while concurrently using a debugger by debug api

3.1.17 In INCA 7.2.9 and HSP 11.9.0

Issue Identifier	Description
589837	FETK-T1 does not initialize DAP interface after LBIST
585919	3 pin DAP setting is inconsistent for FETK-T1

3.1.18 In INCA 7.2.8 and HSP 11.8.0

Issue Identifier	Description
# 583454	Fine Grained Trace isn't working in combination with supplementary DISTAB

3.1.19 In INCA 7.2.7 and HSP 11.7.0

Issue Identifier	Description
n/a	Initial version, support of FETK-T1.1A

3.2 Known issues

3.2.1 In INCA 7.2.7 and HSP 11.7.0

Issue Identifier	Description
#581311 & #581332	For Fine Grained Trace, Infineon Errata MCDS_TC.059 has to be considered for TC2xx ECU Software
# 583454	Fine Grained Trace isn't working in combination with supplementary DISTAB

4 Product Variants

In general the FETK-T1.1A can be purchased in one variant.

4.1 FETK-T1.1A

Item number	F-00K-110-882																																				
Description	FETK-T1.1A Emulator Probe for the Infineon AURIX TC2xx microprocessor family																																				
For details refer the datasheet	<table border="1"> <thead> <tr> <th>DIM</th> <th>MILLIMETERS</th> <th>INCHES</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>56.50^{+0.2}_{-0.2}</td> <td>2.224^{+0.008}_{-0.008}</td> </tr> <tr> <td>B</td> <td>53.00^{+0.2}_{-0.2}</td> <td>2.087^{+0.008}_{-0.008}</td> </tr> <tr> <td>C</td> <td>44.00^{+0.2}_{-0.2}</td> <td>1.732^{+0.008}_{-0.008}</td> </tr> <tr> <td>D</td> <td>29.25^{+0.2}_{-0.2}</td> <td>1.152^{+0.008}_{-0.008}</td> </tr> <tr> <td>E</td> <td>15.50^{+0.2}_{-0.2}</td> <td>0.610^{+0.008}_{-0.008}</td> </tr> <tr> <td>F</td> <td>3.00^{+0.2}_{-0.2}</td> <td>0.118^{+0.008}_{-0.008}</td> </tr> <tr> <td>G</td> <td>3.50^{+0.1}_{-0.1}</td> <td>0.138^{+0.004}_{-0.004}</td> </tr> <tr> <td>H</td> <td>33.25^{+0.2}_{-0.2}</td> <td>1.309^{+0.008}_{-0.008}</td> </tr> <tr> <td>I</td> <td>30.00^{+0.2}_{-0.2}</td> <td>1.181^{+0.008}_{-0.008}</td> </tr> <tr> <td>J</td> <td>9.00^{+0.2}_{-0.2}</td> <td>0.354^{+0.008}_{-0.008}</td> </tr> <tr> <td>K</td> <td>12.00^{+0.2}_{-0.2}</td> <td>0.472^{+0.008}_{-0.008}</td> </tr> </tbody> </table>	DIM	MILLIMETERS	INCHES	A	56.50 ^{+0.2} _{-0.2}	2.224 ^{+0.008} _{-0.008}	B	53.00 ^{+0.2} _{-0.2}	2.087 ^{+0.008} _{-0.008}	C	44.00 ^{+0.2} _{-0.2}	1.732 ^{+0.008} _{-0.008}	D	29.25 ^{+0.2} _{-0.2}	1.152 ^{+0.008} _{-0.008}	E	15.50 ^{+0.2} _{-0.2}	0.610 ^{+0.008} _{-0.008}	F	3.00 ^{+0.2} _{-0.2}	0.118 ^{+0.008} _{-0.008}	G	3.50 ^{+0.1} _{-0.1}	0.138 ^{+0.004} _{-0.004}	H	33.25 ^{+0.2} _{-0.2}	1.309 ^{+0.008} _{-0.008}	I	30.00 ^{+0.2} _{-0.2}	1.181 ^{+0.008} _{-0.008}	J	9.00 ^{+0.2} _{-0.2}	0.354 ^{+0.008} _{-0.008}	K	12.00 ^{+0.2} _{-0.2}	0.472 ^{+0.008} _{-0.008}
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5 Firmware Modifications

5.1 General remarks to this chapter

The programmable logic code within the FETK-T1.1A is stored onto programmable logic devices (FPGA). For the version syntax please refer to chapter 2.1.

Attention:

For updating the FETK - firmware with a later version by using HSP, all FETK firmware packages will be updated one after another. This will last a few minutes and must not be cancelled by the user. In case the firmware update had been finished unsuccessfully due to some reason, the update will have to be repeated. HSP will program the rescue packages onto the FETK. This procedure makes the firmware update fail-safe.

5.2 FPGA-Boot-Code

Revision	Description
Version 1.1.1	Initial Version

Delivery condition:

The FPGA-Boot version 1.1.1 will be programmed into all shipments

5.3 FPGA-Code

Revision	Description
Version 1.5.6	Initial Version
Version 1.6.14	- Bug fix (#583454)
Version 1.7.50	Bugfix: - 589837: FETK-T1 does not initialize DAP interface after LBIST - 585919: 3 pin DAP setting is inconsistent for FETK-T1.0A
Version 1.8.23	Bugfix: - 583933: ES891 stucks in boot loop if wakeup and keep alive on FETK1 / GE activity is configured - 593091: Access to ED RAM could fail while concurrently using a debugger by debug api
Version 1.9.36	- ECU time stamps - support of FETK Alias name - RP improvements for Roundtrip time with ES830 - Bugfix: (601278, 602059 , 603201 and 603463)
Version 1.10.17	Bugfix: - 603293: Higher current consumption - 604175: High jitter of DAQ packets
Version 1.10.18	Added monitor variables to FETK-T1.1A/B for analysis of ECU time alignment operation.
Version 1.10.22	Support of configurable standby mode and additional normal sleep mode
Version 1.13.10	Bugfix - ETKF-1104: Prevent issues when switching between DAP modes - ETKF-1022: Added monitor variables for EDE ingress profiling - ETKF-1064: Increased data size of Trace-FIFO to 4 Kbyte

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Version 1.14.12	Bugfix - ETKF-1206: Support CPLD Update FETK - ETKF-1016: Improve startup behavior of DAP
Version 1.16.26	ETKF-1264: DapIncreasedMaxwait ETKF-1250: Optimize job format of TEA device ETKF-1289: Disallow illegal DAP settings in hwcfg.lua ETKF-1367: Improve error handling in hwcfg.lua plugins
Version 1.17.67	- ETKF-1501: Vstby Umschaltung bei FETK-T korrigieren - ETKF-1357: Implement optional debug information for CableCom load - ETKF-1551: Vstby Follow-Up Story for changing signal names - ETKF-1259: Prototype of FETK-T1 with (new) ATU - ETKF-1604: 'handshake_secu: correct reset value for handshake timeout' - ETKF-775: 'ATU: Improve timing, clock domain crossings and clocks/resets' - ETKF-1577: Cleanup regdef.lua to optimize resources and drop unused functionality - ETKF-1588: Implementation to measure bypass roundtrip time (HDC) - ETKF-1642: 'ATU: simplify clock domains' - ETKF-1643: Finalize FETK-T1 with (new) ATU
Version 1.18.22	ETKF-1700: ARM SIC SIPL improvements ETKF-1698: Remove legacy profiling and debug logicJIRA ETKF-1679: 'ATU: Error Injection'TFS 668695: Timestamp not correct for monitor variables in timer raster
Version 1.19.21	ETKF-1304: Drop support for TC27x A-step from sic_dap ETKF-1776: Fix GET_STATE Trace Interface Status Values ETKF-1792: Resource optimization: Investigate possible resource usage savings regarding internal debug logic ETKF-1576: TEA-MGR: Support new XCP command XETK_CONF_WAIT_STATE
Version 1.20.15	- ETKPRG-1230: XCP use-case support: improve DISTAB17 memory distribution - TFS 681600: XCP Debugging with FETK-S1.1A/B and 3-Pin DAP does not work - TFS 682863 [INCA / FETK]:[TraceOverflow] - AGBT / ECU FIFO overflows are not recognized as such any more by INCA - ETKF-1755 TEA-MGR: Improve error message in case of FETK-T trace link error
Version 1.21.8	- TFS 687725: Two HW reinit needs for XCP measurement - TFS 683889: INCA freezes on motor test bench sporadically - ETKPRG-1364: Execution of arbitrary ECU access sequences
Version 1.22.6	- TFS 687725: Two HW reinit needs for XCP measurement - ETKF-2141, ETKSW-3119 Add counter for how many resets watchdog disable should be active - ETKF-1901 Additional monitor variables for counting ECU resets

Delivery condition:

The FPGA version 1.22.6 will be programmed into all shipments

6 Hardware Modifications

6.1 General remarks to this chapter

Hardware issues or obsolete parts can make it necessary to modify the population of the FETK. Information about the modifications is listed underneath. The hardware state starts with version **A010/01**. For the version syntax please refer to chapter 2.1.

6.2 No modification at hardware state A010/01

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6.3 Hardware delivery condition

The hardware state **A010/01** will be delivered with all new shipments.

7 Abbreviations

ASCET-RP	Rapid Prototyping Software of ETAS
CPLD	C omplex P rogrammable L ogic D evice
ES891	MC hardware
FETK	Product (emulator test probe)
firmware	Software for MC hardware; necessary for implementation of 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
HS	H eat S preader
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
XCP	Universal Measurement and Calibration Protocol