

Thermography Test Report

Equipment under Test (EUT): **Systemboard D3402-B11**

Applicant: FUJITSU TECHNOLOGY SOLUTIONS GmbH
FTS PDG WPS R&D OEM
Mr. Mertes, Wilbert
Bürgermeister-Ulrich-Strasse 100
86199 Augsburg

Document No.: THP+1SB-15002-PR01-K01

Test date: August 06, 2015

Issue date: August 11, 2015

Prepared by:

Matthias Härle
Technician



Signature

Reviewed by:

Alexander Gerum
Deputy Head of LAB E



Signature

The results in this report apply only to the tested sample(s).
Reproduction of this report except in its entirety is not permitted without written approval of:
Fujitsu Technology Solutions GmbH, Product Compliance Center, D-86199 Augsburg,
Bürgermeister - Ulrich - Str. 100, Germany Phone +49 (821) 804-2109, Fax +49 (821) 8044753.

EUT : Systemboard D3402-B11

2. Table of contents

	Page No.
1. Cover	1
2. Table of contents	2
3. Summary of standards and results	3
3.1. Test specifications:	3
3.2. Summary of results	3
3.3. Table of used instruments	3
4. Equipment under test	4
4.1. System description	4
4.2. EUT photos	5
5. Test results	6
5.1. Detected temperature peaks	6
5.2. IR-Images	7

EUT : Systemboard D3402-B11

3. Summary of standards and results

The system was tested according to the test specification listed below.

3.1. Test specifications:

Thermography A26099-Y0023-V261 FTS work specification

3.2. Summary of results

3.2.1. Evaluation of test results

see detected temperature peaks on page 6

Note: The results are only applicable for the tested configuration.

3.3. Table of used instruments

Thermography

Test- / Measure device	Equipment name			Check / Calibration	
	Manufacturer	Type	Serial-No.	last*	next*
Thermography system	FLIR	SC620	404003720	---	08.15C
Lens	FLIR	Clos-up IR lens 0.5X, f=75mm	---	---	08.15C
Lens	FLIR	IR lens, f=19mm, 45°	---	---	08.15C
Software	FLIR	ThermaCAM Researcher	---	---	---
	FLIR	Reporter pro	---	---	---
Temperature reference	AGEMA	1010	12013	11.14C	11.15C

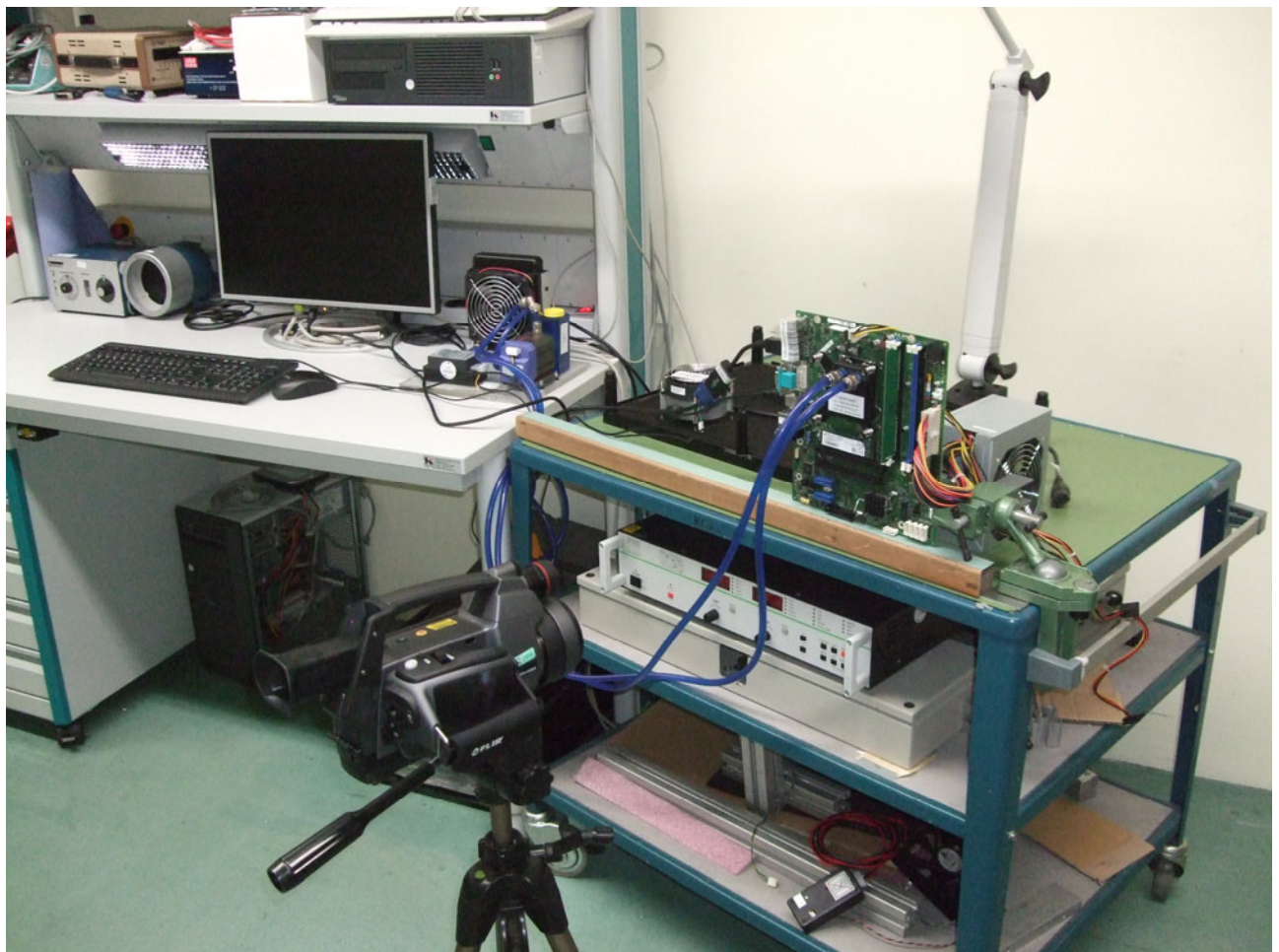
* C = Calibration CH = Check

EUT : Systemboard D3402-B11

4. Equipment under test

4.1. System description

Product type: System board
Manufacturer: Fujitsu Technology Solutions GmbH
Model: D3402-B11 GS51
SN: 47485574



EUT with IR-scanner

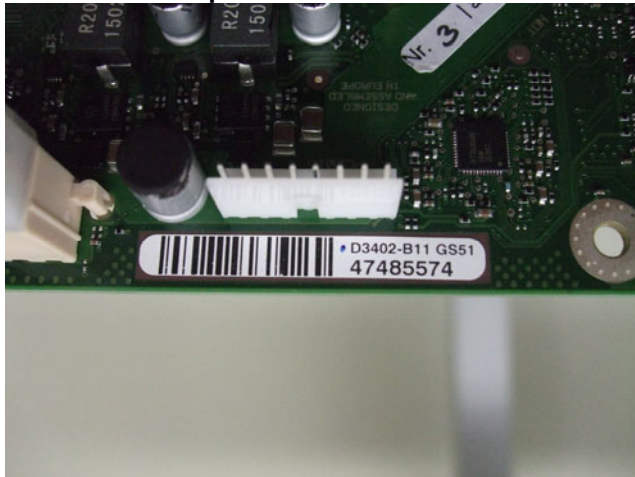
BIOS:V5.0.0.11 R0.95.0 07/23/2015, **CPU:** Intel I5-6600T @2.70GHz with external water cooling,
RAM:1xHMA451U6AFR8N-TF N0 AB 4GB 1Rx8 PC4-2133P-UA1-10 dc:1510, **mSATA:** M600 M.2 128GB
SATA 6Gb/s Model:MTFDDAV128MBF **VGA:** on board D3402-B11, **USB keyboard and mouse**

Heat up time: >2h

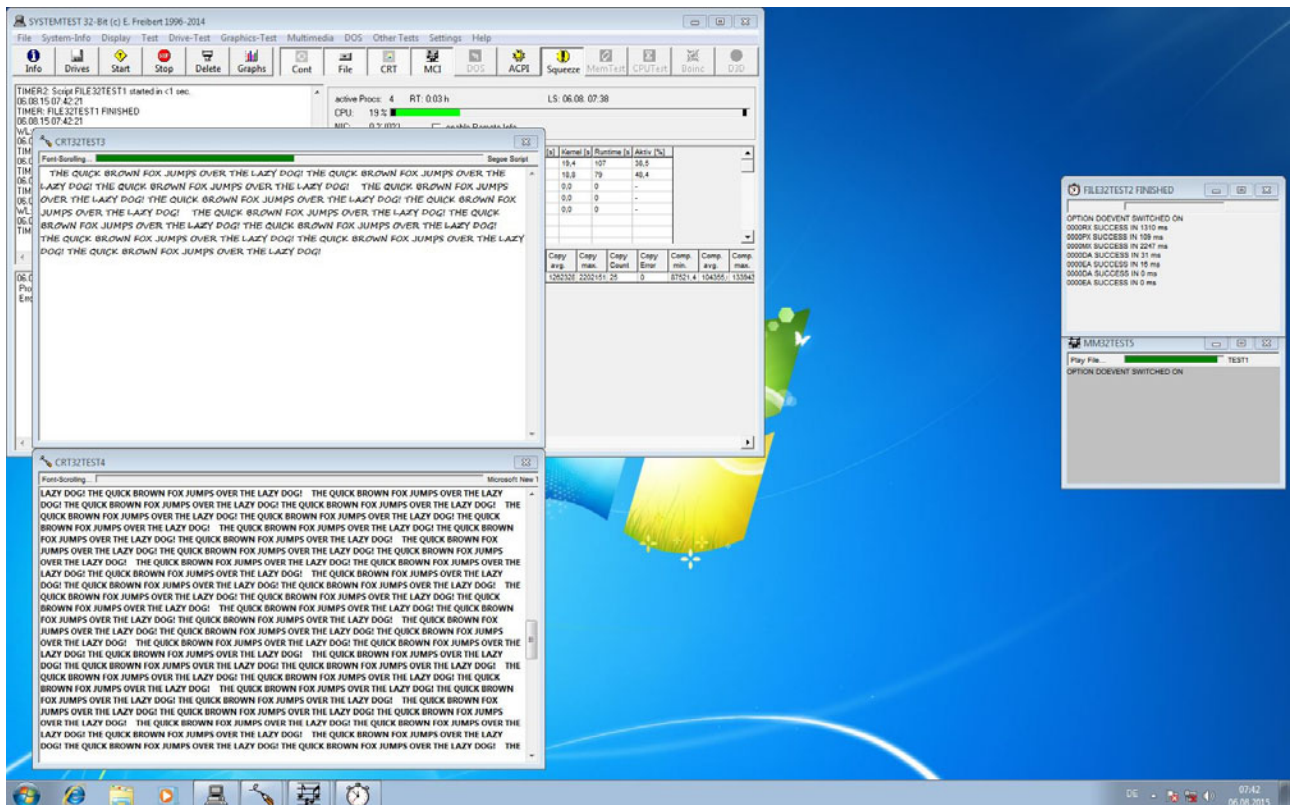
Receipt date: August 05, 2015
Condition when received: Ready for test

EUT : Systemboard D3402-B11

4.2. EUT photos



System board type label



Screenshot of test software

EUT : Systemboard D3402-B11

5. Test results

5.1. Detected temperature peaks

Component topside temperature at an ambient temperature of 20 °C

Through film

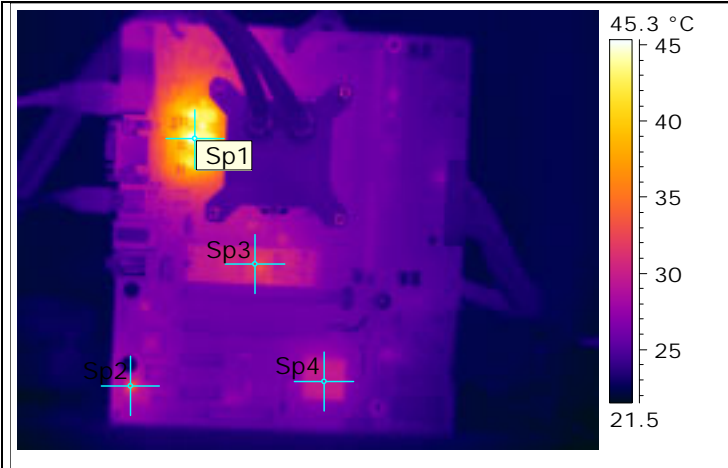
Reference black body: debit 95°C (24° lens) is 95,2 °C

no#	Location	Component	Temperature		IR-images no:		Comment:	Sens point
			with film	without film		Spot		
01	D3402-B11 front	125V21	---°C	---°C	5.2.1	SP1	Overview to see hot spots	
02	..	780D00	---°C	---°C	..	SP2	..	
03	..	400D00	---°C	---°C	..	SP3	..	
04	..	mSata controller chip	---°C	---°C	..	SP4	..	
05	..	125V21	---°C	---°C	5.2.2	SP1	Overview to see hot spots (see remark on page 7)	
06	..	780D00	---°C	---°C	..	SP2	..	
07	..	400D00	---°C	---°C	..	SP3	..	
08	..	mSata controller chip	---°C	---°C	..	SP4	..	
09	..	125N20	---°C	50°C	5.2.3	SP1		
10	..	125N30	---°C	49°C	..	SP2		
11	..	125V20	---°C	45°C	..	SP3		
12	..	125V21	---°C	48°C	..	SP4		
13	..	125L20	---°C	44°C	..	SP5		
14	..	780D00	---°C	36°C	5.2.4	SP1		
15	..	400D00 heat sink	---°C	30°C	5.2.5	SP1		
16	..	mSata controller chip	---°C	35°C	5.2.6	SP1		

EUT : Systemboard D3402-B11

5.2. IR-Images

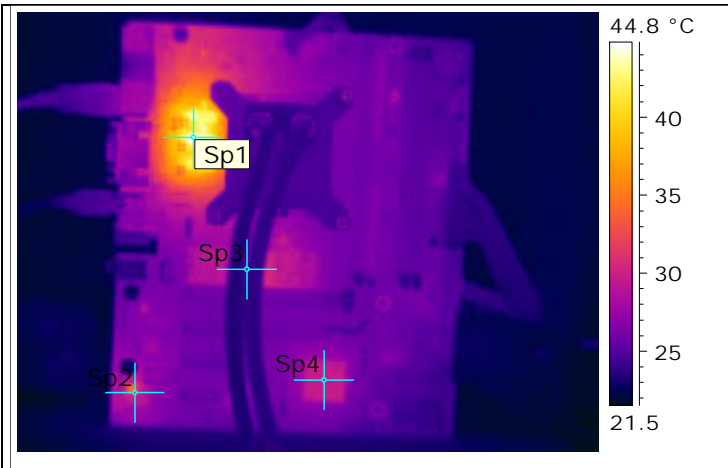
5.2.1 IR-Image



Date	06.08.2015
Filename	1SB-15002-PR01-K01_001.fff
Max Temperature	46.9 °C
Min Temperature	21.3 °C
Emissionsgrad	0.95
Objektabstand	0.5 m
Atmosphärentemperatur	20.0 °C
Relative Luftfeuchtigkeit	35.0 %
Bild Kameratyp	FLIR SC620
Bild Kameraobjektiv	FOL38
Bild Kamerafilter	

Sp1 Temperatur	45.5 °C
Sp2 Temperatur	34.8 °C
Sp3 Temperatur	32.6 °C
Sp4 Temperatur	29.6 °C

5.2.2 IR-Image



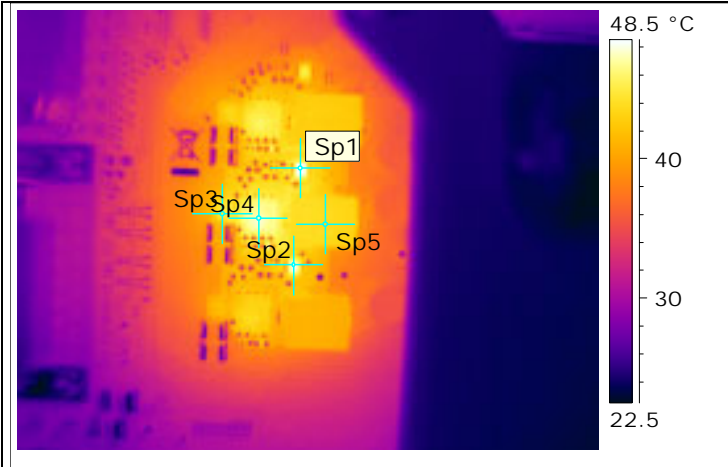
Date	06.08.2015
Filename	1SB-15002-PR01-K01_002.fff
Max Temperature	46.7 °C
Min Temperature	21.4 °C
Emissionsgrad	0.95
Objektabstand	0.5 m
Atmosphärentemperatur	20.0 °C
Relative Luftfeuchtigkeit	35.0 %
Bild Kameratyp	FLIR SC620
Bild Kameraobjektiv	FOL38
Bild Kamerafilter	

Sp1 Temperatur	45.0 °C
Sp2 Temperatur	31.7 °C
Sp3 Temperatur	24.8 °C
Sp4 Temperatur	29.5 °C

➔ Same picture as 5.2.1 only with tubes downwards to see area above CPU

EUT : Systemboard D3402-B11

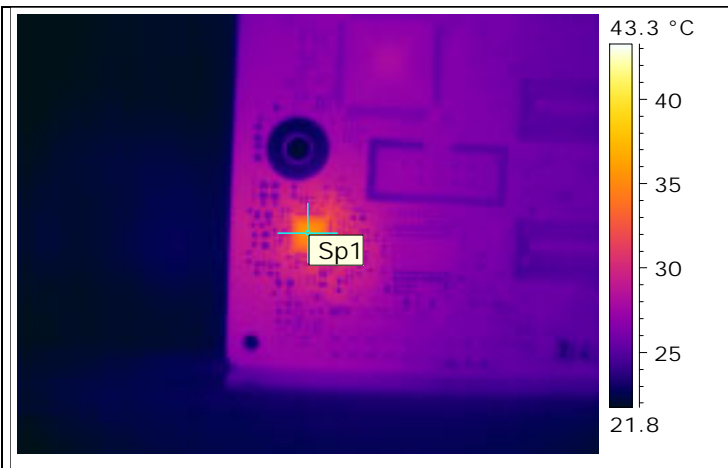
5.2.3 IR-Image



Date	06.08.2015
Filename	1SB-15002-PR01-K01_003.fff
Max Temperature	49.6 °C
Min Temperature	22.2 °C
Emissionsgrad	0.95
Objektabstand	0.1 m
Atmosphärentemperatur	20.0 °C
Relative Luftfeuchtigkeit	35.0 %
Bild Kameratyp	FLIR SC620
Bild Kameraobjektiv	FOL19
Bild Kamerafilter	

Sp1 Temperatur	49.6 °C
Sp2 Temperatur	48.5 °C
Sp3 Temperatur	44.8 °C
Sp4 Temperatur	47.9 °C
Sp5 Temperatur	43.7 °C

5.2.4 IR-Image

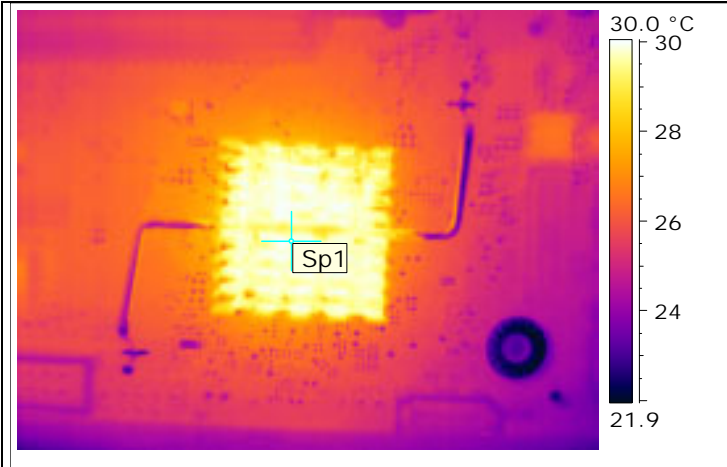


Date	06.08.2015
Filename	1SB-15002-PR01-K01_004.fff
Max Temperature	35.9 °C
Min Temperature	21.3 °C
Emissionsgrad	0.95
Objektabstand	0.1 m
Atmosphärentemperatur	20.0 °C
Relative Luftfeuchtigkeit	35.0 %
Bild Kameratyp	FLIR SC620
Bild Kameraobjektiv	FOL19
Bild Kamerafilter	

Sp1 Temperatur	35.5 °C
----------------	---------

EUT : Systemboard D3402-B11

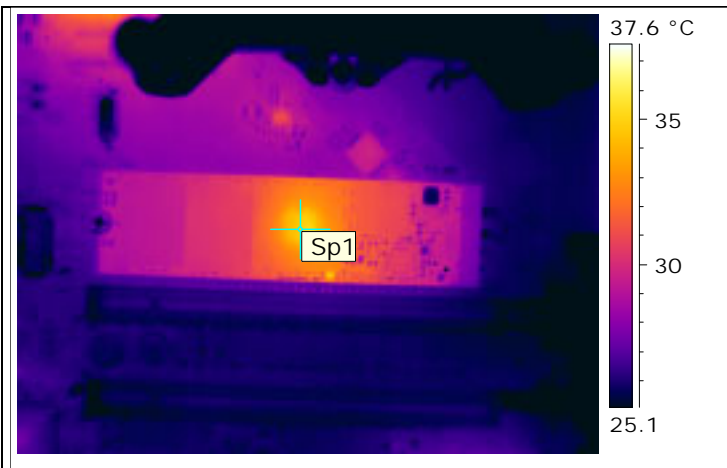
5.2.5 IR-Image



Date	06.08.2015
Filename	1SB-15002-PR01-K01_005.fff
Max Temperature	30.2 °C
Min Temperature	21.8 °C
Emissionsgrad	0.95
Objektabstand	0.1 m
Atmosphärentemperatur	20.0 °C
Relative Luftfeuchtigkeit	35.0 %
Bild Kameratyp	FLIR SC620
Bild Kameraobjektiv	FOL19
Bild Kamerafilter	

Sp1 Temperatur	29.9 °C
----------------	---------

5.2.6 IR-Image



Date	06.08.2015
Filename	1SB-15002-PR01-K01_006.fff
Max Temperature	35.6 °C
Min Temperature	22.5 °C
Emissionsgrad	0.95
Objektabstand	0.1 m
Atmosphärentemperatur	20.0 °C
Relative Luftfeuchtigkeit	35.0 %
Bild Kameratyp	FLIR SC620
Bild Kameraobjektiv	FOL19
Bild Kamerafilter	

Sp1 Temperatur	34.9 °C
----------------	---------