

Climatic Test Report

Equipment under Test (EUT): **D3236-S10 GS60**
with CPU Intel Core i5-4670 3.40GHz,
4x 2GB RAM

Applicant: FUJITSU TECHNOLOGY SOLUTIONS GmbH
FTS PDG WPS R&D OEM
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Test date: June 18, until June 25, 2013

Issue date: June 28, 2013

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Signature

Reviewed by:

Alexander Gerum
Deputy Head of LAB E



Signature

The results in this report apply only to the tested sample(s).

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3. Summary of standards and results

The system was tested according to the applicable standards as referenced below.

3.1. Classification of climatic conditions

Test specification:

Climatic test	DIN EN 60068-1 (Edition 03/95)	Environmental tests part 1, general and guidance.
Climatic test dry heat operation	DIN EN 60068-2-2 (Edition 05/08)	Environmental tests; part 2: test section B, dry heat
Change of temperature	DIN EN 60068-2-14 (Edition 04/10)	Part 2: Tests; test Nb: Change of temperature with specified rate of change

3.2. Summary of results

3.2.1. Valued tests

	passed	failed
Dry heat operation +45°C	X	
Dry heat operation +60°C	X	
Cycle of temperature -8°C / +60°C (5 cycles)	X	

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

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3.3. Table of used instruments

Climatic test cabinet

Test- / Measure device	Equipment name			Check / Calibration	
	Manu- facturer	Type	Serial-No.	last*	next*
Climatic test cabinet with solar simulation	Vötsch Industrie- technik	SC 1000	58566127140 010	10.12CH	10.13CH
40. Data Acquisition Unit 30 ch.	Yokogawa	DA100-13-1F	27E834489	10.12C	10.14C
44. Data Acquisition Unit 30 ch.	Yokogawa	DA100-13-1F	27E749086	10.12C	10.14C
Thermocouples	Thermocoax	Chrom- Alumel	Type:K	with	Recorder
Multimeter	Fluke	87V TRUE RMS	88630333	11.11C	11.13C

- C = Calibration CH = Check

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4. Equipment under test

4.1. System description

Product: D3236-S10
 Manufacturer: FUJITSU TECHNOLOGY SOLUTIONS GmbH
 Type: other
 Approval name: D3236-S10

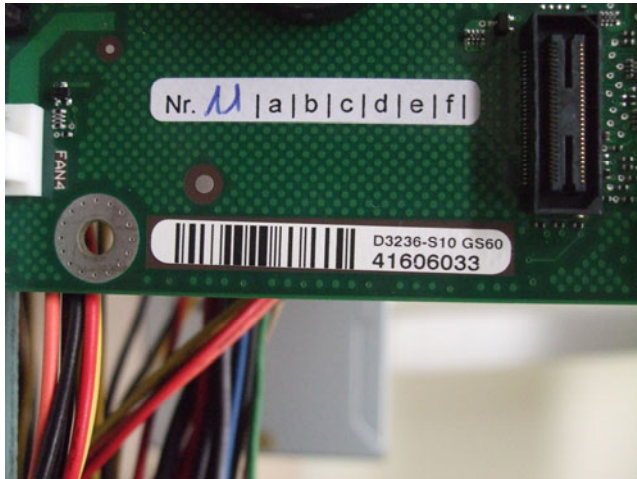
Part no.: S26361-D3236-S10

Component	Model	Manufacturer	Part no.	Serial no.	Rev.	Remark
PSU	FSP350-60APN	FSP Group Inc.		S2321205293		350W
CPU	Core i5-4670	Intel GmbH		n.a.		3.40GHz
Heat sink	B963-V1	AVC	V26898-B963-V1	4259	2011.03.15	Top blower with fan, AVC:Z8UJ00D001
System board	D3236-S10	FTS	S26361-D3236-S10	41606033	GS60	BIOS:V4.6.5.4 R1.2.0 for D3236-S1x 05/14/2013, on board LAN connected to each other
RAM 4x	M378B5773CH0-CK0	Samsung Electronics Co. Ltd.		n.a.		2GB 1Rx8 PC3-12800U-1 1-10-A0, dc:1250
HDD	MQ01ABD050	Toshiba		33QNT08NT		500GB, with OS Windows7
FAN	CHD9212CB-OA(TP)(E)	EKL		060617		Not for cooling purposes, only as load for fan controller!

Receipt date: June 13, 2013
 Condition when received: Ready for test

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4.2. EUT Photos



Picture no. 1: System board type label



Picture no. 2: Memory type label



Picture no. 3: PSU type label



Picture no. 4: CPU heat sink type label

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Picture no. 5: HDD type label



Picture no. 6: EUT in climatic cabinet



Picture no. 7: EUT in card board box



Picture no. 8: Type label of fan

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5. Test results

5.1. Dry heat operation, +45°C

	passed	failed
Operation at high temperature (+35°C)	X	

Standards: DIN EN 60068-2-2 (Edition 05/08) Test section B: dry heat

Temperature values: +45°C

Requirements: Specified performance data must be met.
For all components the maximum temperatures allowed must not be exceeded.

Test software: See page 9

Results: No objections

Remarks: After directional stability of all temperatures the tests were running for at least 30 minutes.

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Ch. #	ThC. #	Module/PWB	Component:	1 [°C]	Δt [K]	2 [°C]	Δt [K]	3 [°C]	Δt [K]	4 [°C]	Δt [K]	Max [°C]
1	893	Unit	Ambient air	45		45		45				---
2	H85	SB	660D00 (PCI Bridge)	49	36	47	38	45	40			85
3	E72	SB	769V70 (3Pin Fan Regulator)	45	55	43	57	41	59			100
4	B35	SB	780D00 (Audio Codec)	54	16	53	17	53	17			70
5	95	SB	500D00 (Super I/O)	48	22	49	21	52	18			70
6	H44	SB	520D00 (COM Driver)	44	26	42	28	40	30			70
7	D12	SB	800D00 (LAN1 PHY)	49	36	50	35	52	33			85
8	714	SB	800G00 (LAN1 Quarz)	48	22	50	20	53	17			70
9	333	SB	120L30 (Core Regulator Coil)	55	45	56	44	63	37			100
10	A88	SB	120V13 (Core Regulator FET)	55	50	61	44	76	29			105
11	843	SB	120L20 (Core Regulator Coil)	57	43	59	41	69	31			100
12	773	SB	120C40 (Capacitor Core input filter)	50	18	52	16	59	9			68
13	52	SB	940N00 (P3V3P_STBY Regulator)	47	53	47	53	48	52			100
14	F74	SB	160C67 (Memory Capacitor)	46	22	47	21	45	23			68
15	86	SB	160L60 (Memory Regulator Coil)	47	53	48	52	45	55			100
16	50	SB	160V60 (Memory Regulator FET)	47	58	48	57	46	59			105
17	F9	SB	905C03 (Capacitor PCIe P3V3P)	46	22	44	24	44	24			68
18	E19	SB	423X60 (Battery)	44	26	42	28	40	30			70
19	94	SB	401G50 (Quartz PCH)	48	22	47	23	47	23			70
20	C20	SB	345N00 (PCH Core Regulator)	49	51	47	53	46	54			100
21	96	SB	880D00 (TPM)	51	19	51	19	50	20			70
22	870	SB	400D00 (PCH Q87 heat sink)	46	58	44	60	42	62			104
23	718	SB	120C92 (Core Regulator Capacitor)	51	17	54	14	62	6			68
24	899	SB	603C50 (Capacitor USB)	47	21	48	20	51	17			68
25	838	SB	820D00 (LAN2)	54	31	56	29	60	25			85
26	54	SB	820G50 (Quartz LAN2)	49	21	51	19	56	14			70
27												
28												
29												
30												

Description:

Col. 1 Mains 230V / 50Hz; without fan
Test: Idle Mode Date: 18.06.2013 09:03:33

Col. 2 Mains 230V / 50Hz; without fan
Test: SysTest32 Date: 18.06.2013 10:05:23

Col. 3 Mains 230V / 50Hz; without fan
Test: PTU Thermal Test Date: 18.06.2013 11:42:33

Col. 4 _____

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5.2. Dry heat operation, +60°C

	passed	failed
Operation at high temperature (+60°C)	X	

Standards: DIN EN 60068-2-2 (Edition 05/08) Test section B: dry heat

Temperature values: +60°C

Requirements: Specified performance data must be met.
For all components the maximum temperatures allowed must not be exceeded.

Test software: See page 11

Results: No objections

Remarks: After directional stability of all temperatures the tests were running for at least 30 minutes.

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Ch. #	ThC. #	Module/PWB	Component:	5 [°C]	Δt [K]	6 [°C]	Δt [K]	7 [°C]	Δt [K]	8 [°C]	Δt [K]	Max [°C]
1	893	Unit	Ambient air	60		60		60				---
2	H85	SB	660D00 (PCI Bridge)	64	21	63	22	64	21			85
3	E72	SB	769V70 (3Pin Fan Regulator)	62	38	61	39	61	39			100
4	B35	SB	780D00 (Audio Codec)	70	0	69	1	69	1			70
5	95	SB	500D00 (Super I/O)	62	8	65	5	65	5			70
6	H44	SB	520D00 (COM Driver)	60	10	59	11	59	11			70
7	D12	SB	800D00 (LAN1 PHY)	63	22	65	20	65	20			85
8	714	SB	800G00 (LAN1 Quarz)	62	8	65	5	65	5			70
9	333	SB	120L30 (Core Regulator Coil)	64	36	68	32	68	32			100
10	A88	SB	120V13 (Core Regulator FET)	67	38	77	28	77	28			105
11	843	SB	120L20 (Core Regulator Coil)	66	34	70	30	70	30			100
12	773	SB	120C40 (Capacitor Core input filter)	62	6	66	2	66	2			68
13	52	SB	940N00 (P3V3P_STBY Regulator)	61	39	62	38	63	37			100
14	F74	SB	160C67 (Memory Capacitor)	61	7	63	5	62	6			68
15	86	SB	160L60 (Memory Regulator Coil)	61	39	63	37	62	38			100
16	50	SB	160V60 (Memory Regulator FET)	61	44	65	40	62	43			105
17	F9	SB	905C03 (Capacitor PCIe P3V3P)	60	8	60	8	60	8			68
18	E19	SB	423X60 (Battery)	59	11	58	12	58	12			70
19	94	SB	401G50 (Quartz PCH)	62	8	62	8	62	8			70
20	C20	SB	345N00 (PCH Core Regulator)	63	37	63	37	63	37			100
21	96	SB	880D00 (TPM)	65	5	66	4	66	4			70
22	870	SB	400D00 (PCH Q87 heat sink)	61	43	60	44	60	44			104
23	718	SB	120C92 (Core Regulator Capacitor)	62	6	67	1	67	1			68
24	899	SB	603C50 (Capacitor USB)	62	6	64	4	64	4			68
25	838	SB	820D00 (LAN2)	67	18	70	15	70	15			85
26	54	SB	820G50 (Quartz LAN2)	62	8	65	5	65	5			70
27												
28												
29												
30												

Description:

Col. 5 Mains 230V / 50Hz; without fan
Test: Idle Mode Date: 19.06.2013 06:32:23

Col. 6 Mains 230V / 50Hz; without fan
Test: SysTest32 Date: 19.06.2013 08:45:33

Col. 7 Mains 230V / 50Hz; without fan
Test: PTU ThermalTest Date: 19.06.2013 11:03:43

Col. 8 _____

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5.3. Cycle of temperature, -8°C / +60°C

	passed	failed
Cycle of temperature (-8°C / +60°C 5 cycles)	X	

Standards: DIN EN 60068-2-14 (Edition 04/10) Test section Nb

Temperature values: -8°C / +60°C

Test conditions: 5 cycles

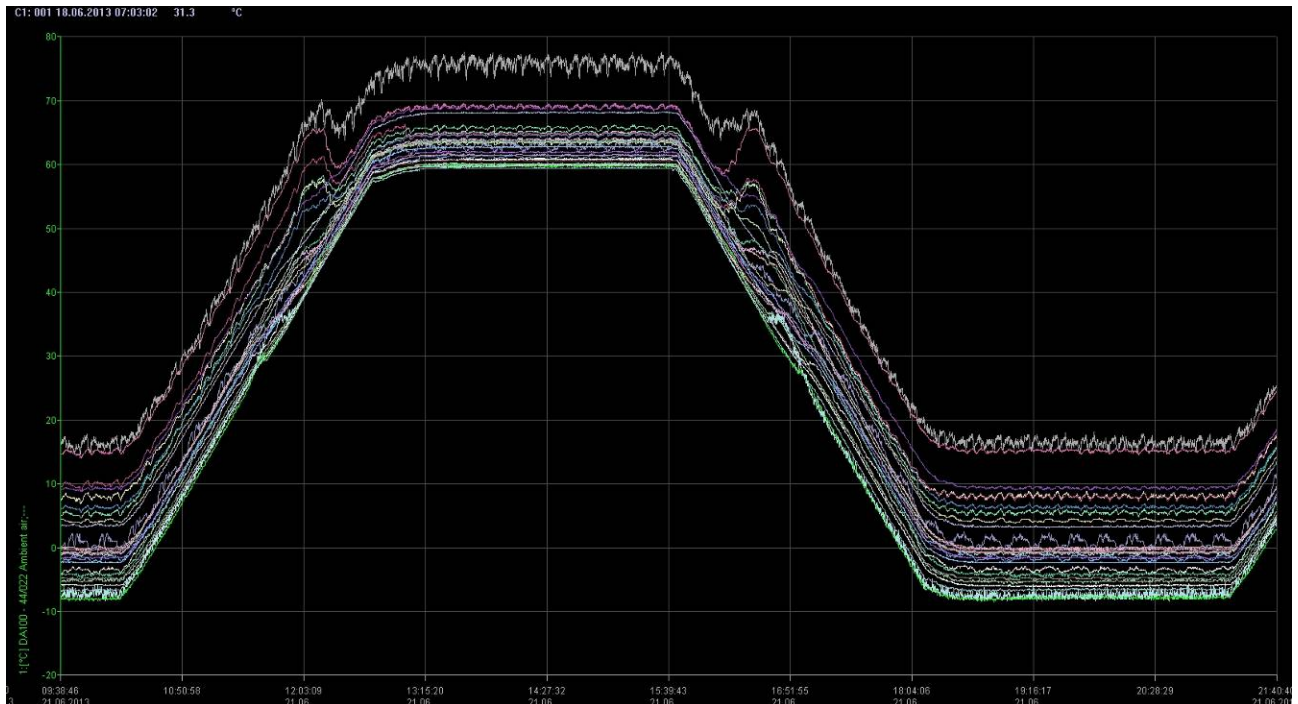
Dwell time: 2.5 hours per temperature + 2.5 hours change of temperature

Test software: Windows 7 with SysTest32 (all tests continuous running)

Requirements: Function

Results: No objections

Remarks: ---



Temperature diagram for one temperature cycle