

phyCORE-i.MX6UL/ULL

Heat Generation Report

SOM Prod. No.: PCL-063

SOM PCB No.: 1468.x

SBC Prod. No.: PB-02014-xxx

CB PCB No.: 1472.x

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1 Introduction

The objective of this report is to show a simple comparison of heat generation of different phyCORE-i.MX 6UL/ULL controllers at room temperature in idle and full-load mode.

1.1 Test Conditions

- The test is done in a air-conditioned room at 25 °C.
- The phyCORE-i.MX 6UL/ULL is soldered onto a phyBOARD-Segin.
- All boards have 9 mm standoffs mounted (See Figure 1).
- Idle mode is reached after booting. Ethernet is up but not connected.
- Full-load mode has the following configurations:
 - Ethernet speed test with iperf is running. `iperf -s &`
 - `cat /dev/urandom > /dev/fb0 &`
 - `dd if=/dev/urandom of=/dev/null &`
 - `dd if=/dev/urandom of=/home/root/testfile &`
 - `memtester 200M &`
- The temperatures were measured after idle and full load modes were reached. For full-load mode, measurements were taken after running with the above configurations for approx. 1 hour.

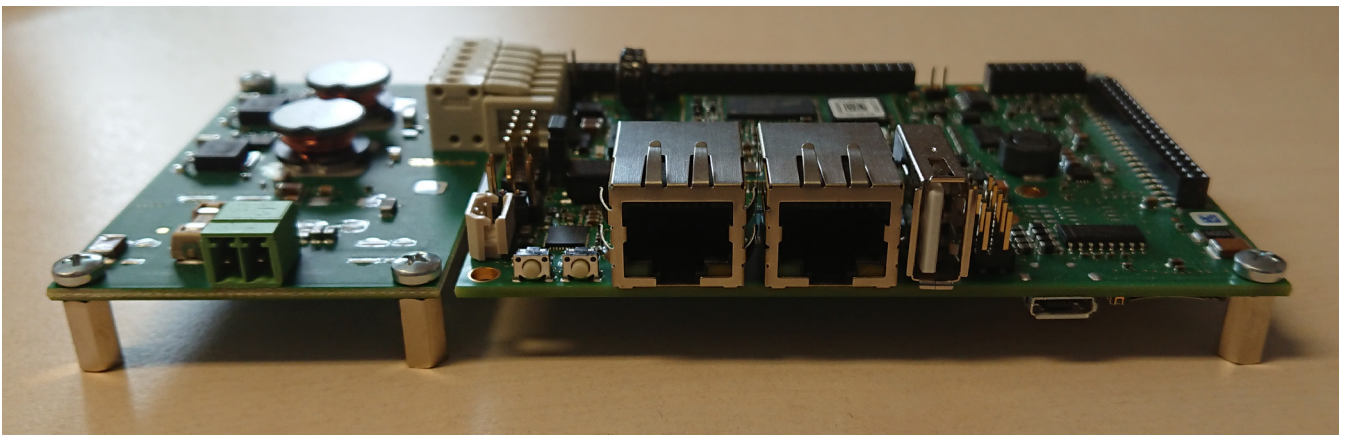


Figure 1: *phyBOARD-Segin with standoffs*

1.2 Hardware and Software

All boards are booted from NAND with BSP-Yocto-Vendor-phyBOARD-Segin-PD17.1.2.

Board 1:

- Low-Cost phyBOARD-Segin with i.MX 6ULL Y0 528 MHz
 - PB-02013-001C.A1 → PCL-063-11600CC.A1
 - 5V external supply

Board 2:

- Full-Featured phyBOARD-Segin with i.MX 6UL G2 528 MHz
 - PB-02013-110I.A1 → PCL-063-23300CI.A1
 - Power supplied using external power module PEB-POW-01

Board 3:

- Full-Featured phyBOARD-Segin with i.MX 6UL G2 696 MHz
 - PB-02013-210I.A0 → PCL-063-23400CI.A1
 - Power supplied using external power module PEB-POW-01

2 Results

Board 1 (Y0 528 MHz):

- Idle: Max. 29.2°C

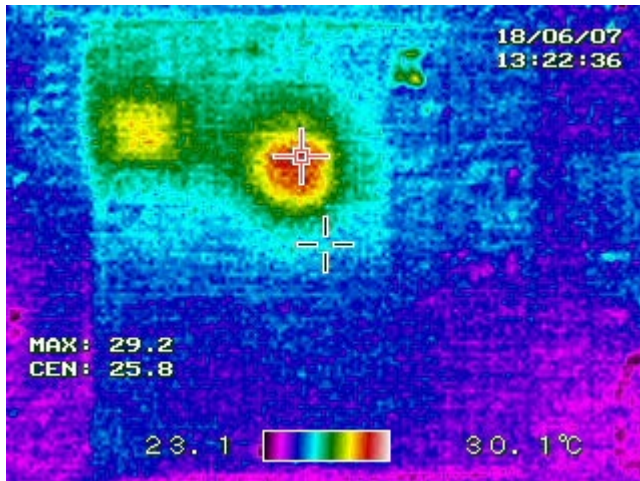


Figure 2: Y0 528 MHz Idle IR view

- Full Load: 35.9°C

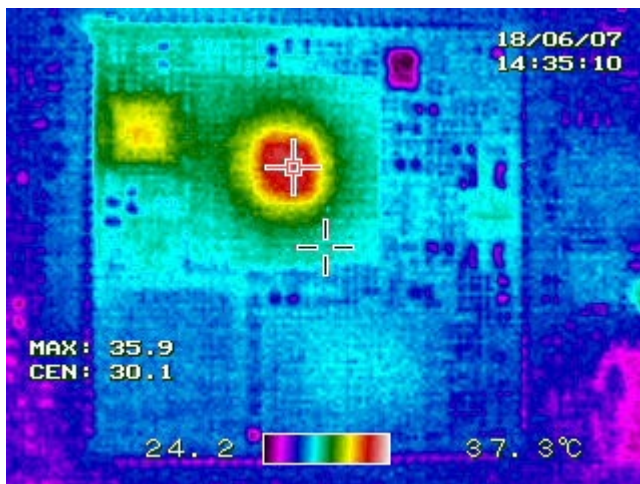


Figure 3: Y0 528 MHz Full Load IR view

Board 2 (G2 528 MHz):

- Idle: Max. 35.5°C

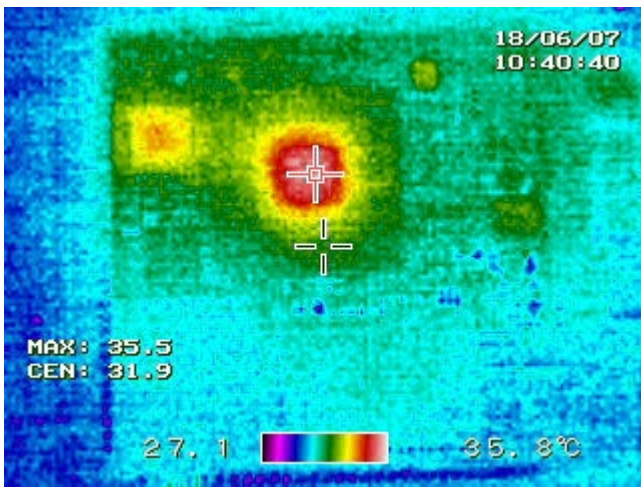


Figure 4: G2 528 MHz Idle IR view

- Full Load: Max. 42.4°C



Figure 5: G2 528 MHz Full Load IR view

Board3 (G2 696 MHz):

- Idle: Max. 32.2°C

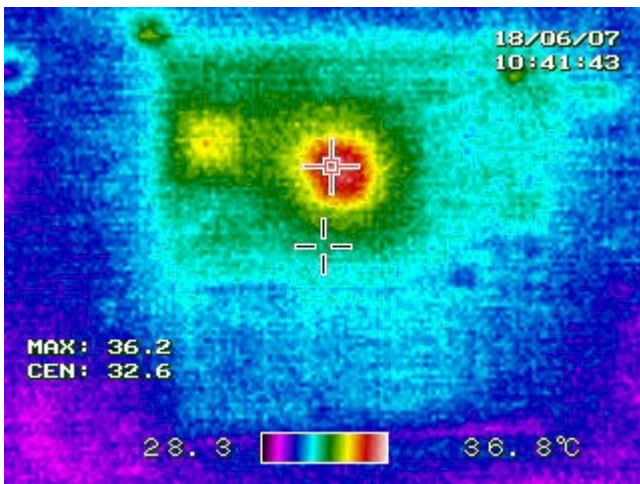


Figure 6: G2 696 MHz Idle IR View

- Full load: Max. 45.9°C

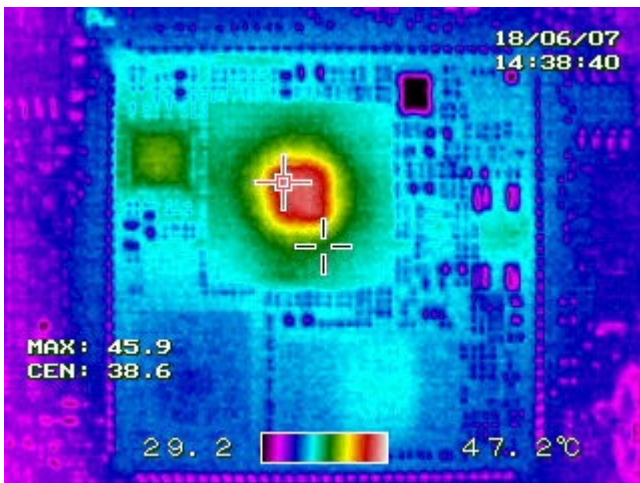


Figure 7: G2 696 MHz Full Load IR View

3 Revision History

Version	Changes	Date	Author
LAN-081e_1	First Draft	14.06.2018	R. Stidronski

	EUROPE	NORTH AMERICA	FRANCE
Address:	PHYTEC Messtechnik GmbH Robert-Koch-Str. 39 D-55129 Mainz GERMANY	PHYTEC America LLC 203 Parfitt Way SW Bainbridge Island, WA 98110 USA	PHYTEC France 17, place Saint-Etienne F-72140 Sillé-le-Guillaume FRANCE
Ordering Information:	+49 6131 9221-32 sales@phytec.de	+1 800 278-9913 sales@phytec.com	+33 2 43 29 22 33 info@phytec.fr
Technical Support:	+49 6131 9221-31 support@phytec.de	+1 206 780-9047 support@phytec.com	support@phytec.fr
Fax:	+49 6131 9221-33	+1 206 780-9135	+33 2 43 29 22 34
Web Site:	http://www.phytec.de http://www.phytec.eu	http://www.phytec.com	http://www.phytec.fr

	INDIA	CHINA
Address:	PHYTEC Embedded Pvt. Ltd. No. 1688, 25 th A Cross 27 th Main, 2 nd Sector, Opp. PEP School V2, HRS Layout Bangalore 560102 INDIA	PHYTEC Information Technology (Shenzhen) Co. Ltd. 2106A, Block A, Tianxia Jinniu Square, Taoyuan Road, Nanshan District, 518026 Shenzhen CHINA
Ordering Information:	+91-80-4086 7046/48 sales@phytec.in	+86-755-6180-2110 sales@phytec.cn
Technical Support:	+91-80-4086 7047/50 support@phytec.in	support@phytec.cn
Fax:		
Web Site:	http://www.phytec.in	http://www.phytec.cn