

# phyCORE-i.MX6UL/ULL

## Heat Generation Report

SOM Prod. No.: PCL-063

SOM PCB No.: 1468.x

SBC Prod. No.: PB-02013-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.

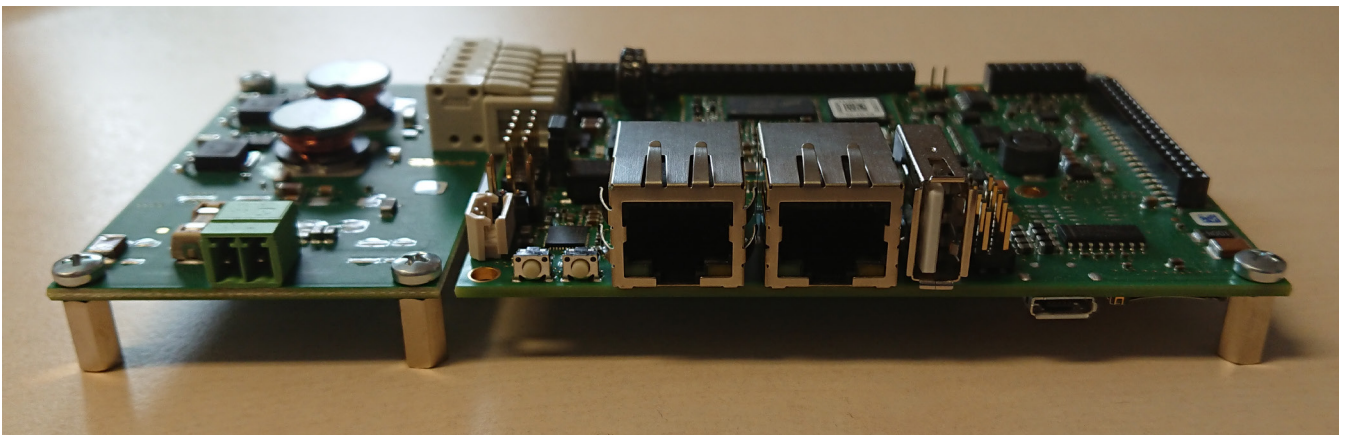


Figure 1: *phyBOARD-Segin with standoffs*

## 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

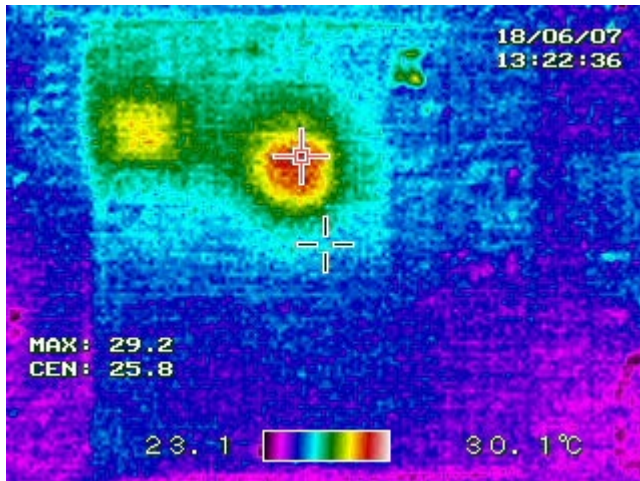


Figure 2: Y0 528 MHz Idle IR view

- Full Load: 35.9°C

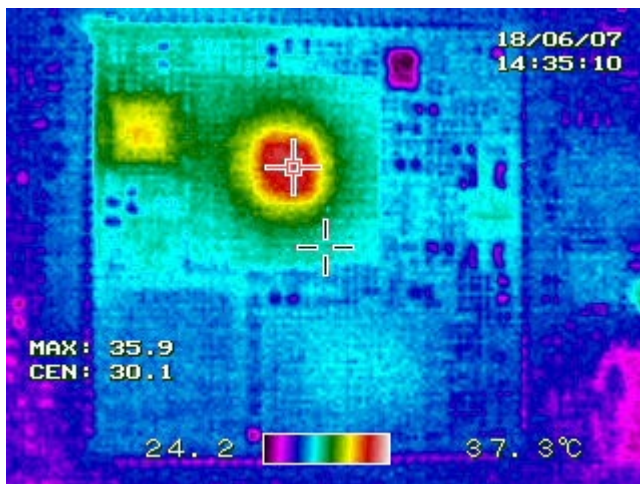


Figure 3: Y0 528 MHz Full Load IR view

Board 2 (G2 528 MHz):

- Idle: Max. 35.5°C

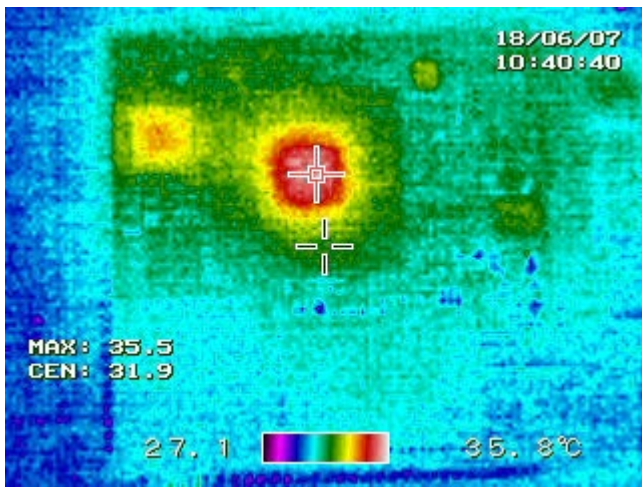


Figure 4: G2 528 MHz Idle IR view

- Full Load: Max. 42.4°C

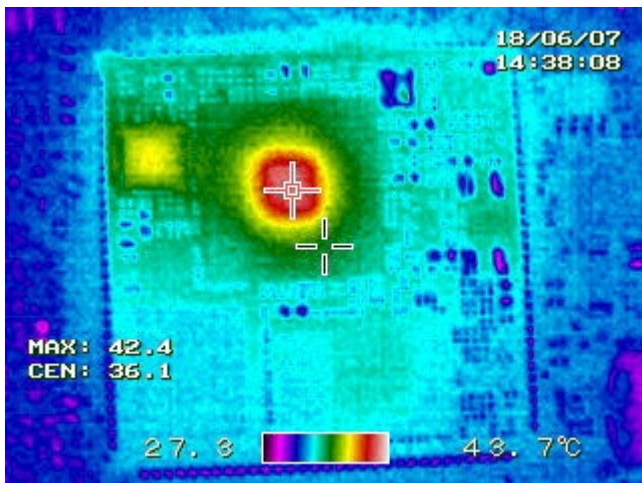


Figure 5: G2 528 MHz Full Load IR view

Board3 (G2 696 MHz):

- Idle: Max. 32.2°C

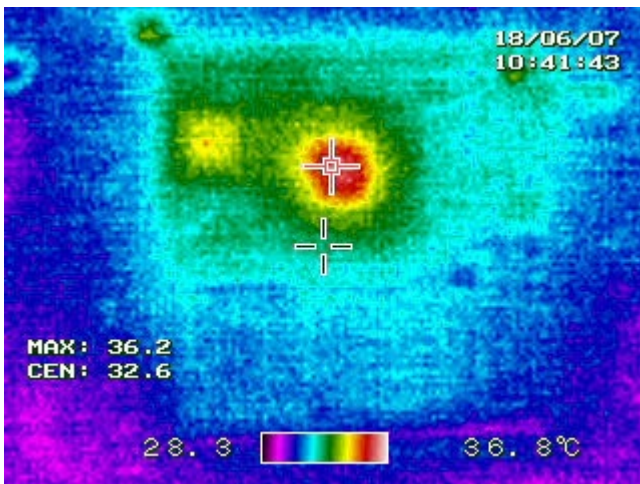


Figure 6: G2 696 MHz Idle IR View

- Full load: Max. 45.9°C

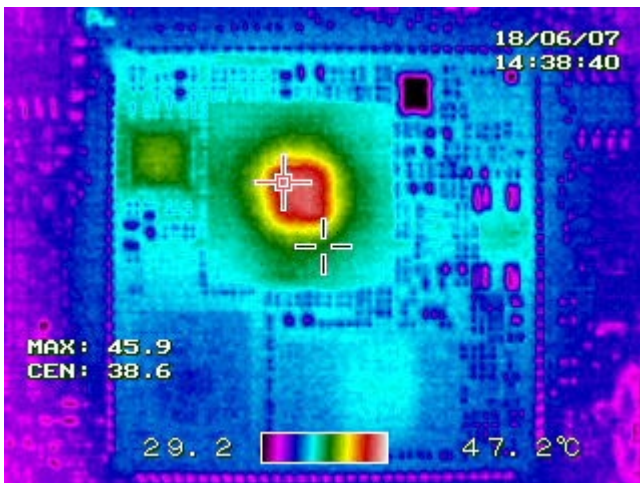


Figure 7: G2 696 MHz Full Load IR View

### 3 Revision History

Version	Changes	Date	Author
LAN-081e_1	First Draft	14.06.2018	R. Stidronski
LAN-081e.A2	Updated SBC Prod. No. Updated CHINA Address	14.12.2020	R. Stidronski

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