18.5 inch Industrial panel PC

PPC-4218-VKI

Product Specification

Revisions

Version	Author(s)	Description of Version	Date Completed
D0.01	BL	Draft	10/26/2016
D0.02	JC	Change model number Update block diagram Add system 3D drawing	12/5/2016
D0.03	BL	Updated to 18.5" specs based on feedback of EVT	1/17/2018
D0.04	BL	Add environmental specs, 2D drawing, FCC requirement	1/19/2018

1. Introduction

1.1 Purpose

This document will define the required features and reference for building PPC-4218-VKI DVT sample and future PVT, MP for the new coffee machine model.

1.2 Scope

The PPC-4218-VKI is designed for final product development of this project.

2. System Description

2.1 Specifications

It will be based on HABEY EMB-1200-DL Mainboard, IOB-3200 carrier board and IOB-4217 IO board with the following specifications:

Board Essentials

Platform Codename	ARM Cortex A9
Form Factor	OEM
Processor	Freescale i.MX6 1.0GHz Dual Lite
Chipset	SoC
System Memory	1GB on-board DDR3
Ethernet	1x RJ45, GbE x1, WiFi module (Included)
Storage	on-board Flash (8GB default)
Power	24V DC via Molex connector

Graphic

Graphic Controller	OpenCL support 3D graphics with up to quad shaders at 200 Mt/s
Display Interface	1x micro HDMI 1.4
LCD Interface	1x dual channel 24-bit LVDS

I/O

|	
Serial Port	2x RS-232 (Tx,Rx) via Molex
USB	3x USB2.0 Type A
Micro SD	1x Micro SD socket
Digital I/O	2x GPIO via Molex
Audio	Speaker out (2x 1W speakers), 1x Line-out via Molex

Touch Panel (18.5")

Screen Size	18.5"
Active Area	Portrait mode, 193.59(H) x 344.16(V) mm
Number of Pixel	1920 x 1080
Brightness	350 cd/m2
Contrast Ratio	1000
Response Time	8ms
Backlight	LED, 50000Hrs
Viewing Angle	Portrait mode, Horizontal 89º/89º, Vertical 89º/89º
Interface	LVDS
Touch Technology	Projected capacitive touch screen

Mechanical & Environmental

Dimensions	493 x 301 x 52 mm
Color	Black
Material	Metal
Cooling	Fanless
Mounting	Custom panel mount
Operating Temperature	0 ~ 50° C
Storage Temperature	-40 ~ 70° C
Operating Humidity	10% ~ 90%, 50ºC, non-condensing
Vibration	1.5G
Shock	50G Peak acceleration (20ms duration)

2.2 Enclosure

Metal enclosure based on the current EVT design design:
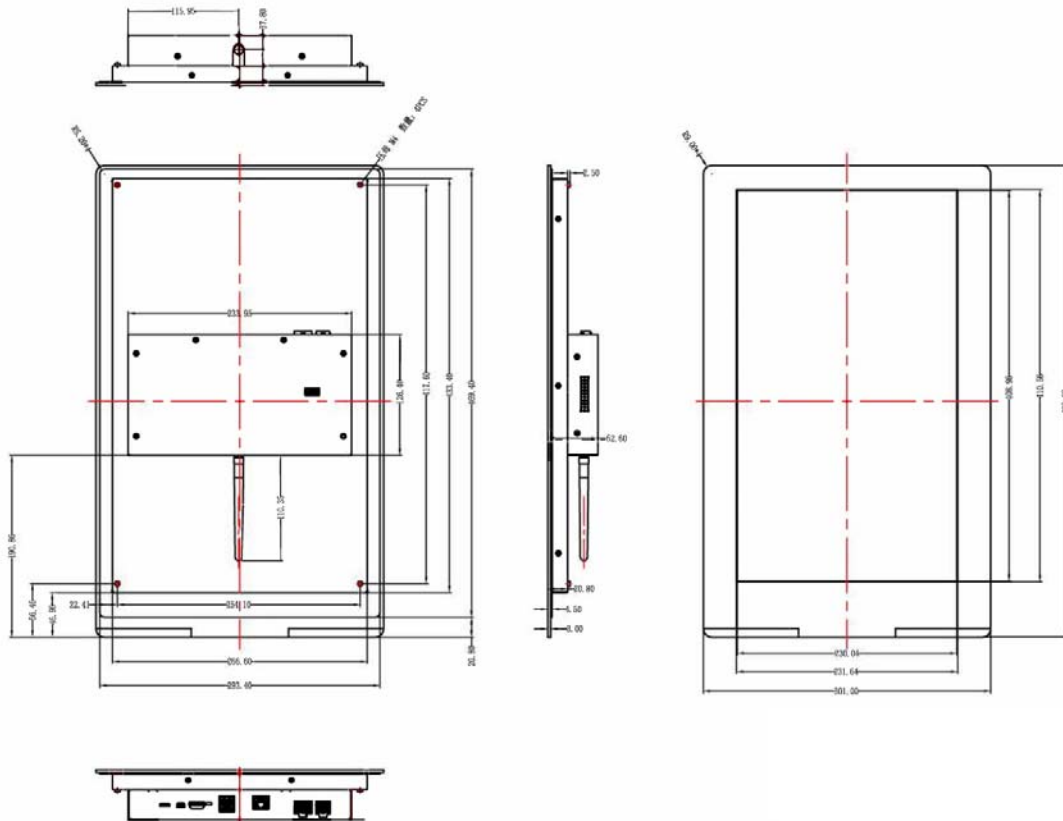
Refer to PPC-4218-VKI_2D_20171116.pdf and PPC-4218-VKI_3D_20171116.stp

2.3 Interfaces

The following interfaces are required:

   a. Display: one LVDS interface from motherboard to LCD panel, one micro HDMI
   b. Touch Panel: one I2C interface from motherboard
   c. Ethernet: one Ethernet port (RJ45) from motherboard
   d. USB: two USB type A ports, one USB WF connector from motherboard to type A on IO board
   e. Molex connector: 39-30-0080, 8 position with 24V DC power input, one RS-232 (Rx, Tx) and two GPIO

f.   Molex connector: 39-30-0060, 6 position with one RS-232 (Rx, Tx) and one audio line out (L, R)
g.   Audio: 2x 1W 8Ω internal speakers
h.   SD: 1x micro SD slot from motherboard
i.   LCD: 1920 x 1080 panel to motherboard LVDS
j.   Power: one 24V/1A DC from molex connector(39-30-0080)
k.   WiFi: Internal WiFi module via USB, external antenna from SMA connector
l.   Console port: one pin header from motherboard

2.4 Bill of Materials

Points below are a summary. Refer to official BOM when released.

- Chassis: PPC-4218-VKI-Case, custom made, metal, tooling required
- Motherboard: IOB-3200-VKI + EMB-1200 + IOB-4217
- WiFi: On-board USB module (OEM)
- LCD Panel: G185HAN01.0 1920 x 1080 LCD panel
- Touch panel: Projective capacitive touch screen
- Memory:1 GB DDR3 onboard
- Storage: On-board NAND flash (8GB default)
- Speaker: 2x 1W 8 ohm internal speaker
- Accessories: 4 x mounting screws
- SN and product label

2.5 Operating System and software requirements

Software requirements	
Operating system	VKI production image (Pre-installed on internal flash, version TBD) Kernel version: 3.14.52 Yocto version: 2.1 Qt version: 5.8 Uboot version: TBD Rootfs version: TBD
Software prerequisites	Qt 5.8 (WebEngine) Mono 3.4 Backlight driver Audio driver Wifi driver Network driver UART Driver Watchdog timer driver Touch screen driver
Documentation	Qt Creator Configuration Procedure Backlight driver API Watchdog timer driver API

3. Operational Requirements

3.1 Product Label (TBD)

3.2 Unique Identifier (P/N will be changed)

Follow standard Habey SN labeling procedure, Model# PPC-4218-VKI.
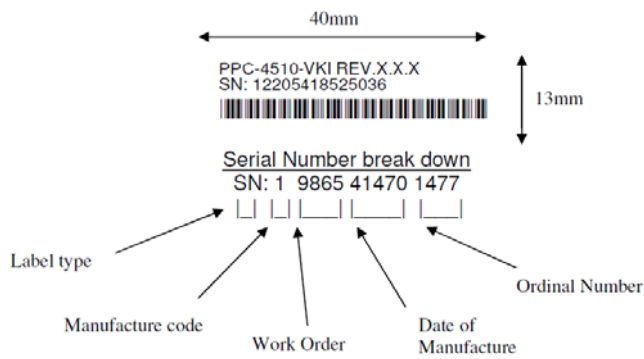
a. Label type - SN for Serial Number type, final assembly.
b. Manufacture code – 2 for PPC-4218-VKI
c. Work Order - Work Order Number For assembly
d. Date of Manufacture – Manufacture date, generated by Microsoft Date function, 5 digits only.
e. Ordinal Number – Count the products produced in this batch, 4 digits only.

3.3 System Test

Yocto 2.1 image and perform functional tests, validate:

- LCD
- Touch panel
- Internal speaker
- Micro-SD card reading
- USB R/W, full speed on all ports
- Serial port loopback
- WiFi
- RJ45 port Ethernet speed

Perform 4 hour burn-in with 50% CPU load

3.4 Packaging

Need to use ESD material for system packing.

Packing box design TBD
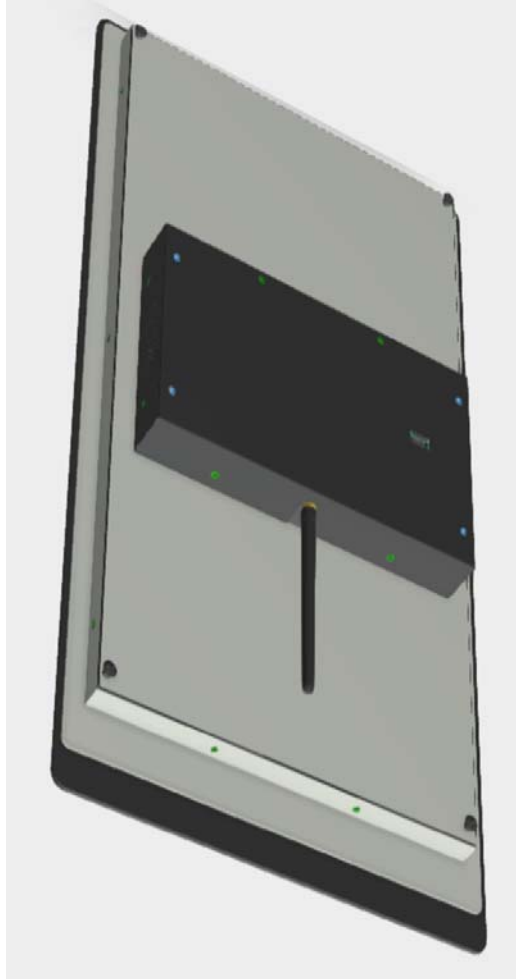
4. Certification Requirements

4.1 Certification

FCC, the device SHALL pass Part 15, Class B of the FCC rules
IC
CE

5.1 System 3D View

FCC Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Important Note:

Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

ISED Statement

 - English: This device complies with Industry Canada license-exempt RSS standard(s).Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference, including interference that may cause undesired operation of the device.The digital apparatus complies with Canadian CAN ICES-3 (A)/NMB-3(A).
 - French:Le présentappareilestconforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitationestautorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareildoit accepter tout brouillageradioélectriquesubi, mêmesi le brouillageest susceptible d'encompromettre le fonctionnement.L'appareil numérique est conforme à CAN CAN ICES-3 (A)/NMB-3(A).

Radiation Exposure Statement

This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Déclarationd'exposition aux radiations

Cetéquipementestconforme Canada limitesd'exposition aux radiations dans un environnement non contrôlé. Cetéquipementdoitêtreinstallé et utilisé à distance minimum de 20cm entre le radiateur et votre corps.