



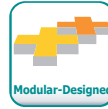
# BMAL Box Module

Atom



### Features

- Support Adaptive Display Platform
- Supports 24V / 9~48V Power Board Module
- Accessible 2.5" SATA Drive Bay
- 12V/24V/48V Ignition Power Control
- Wide Operating Temperature: -40 to 70°C

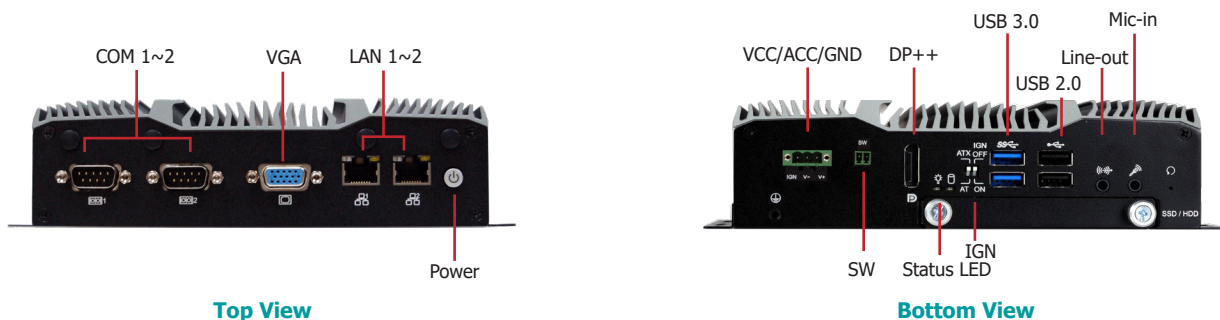


### Overview

DFI's BMAL box module offers the option of built-in power ignition management and two internal Mini PCIe slots suitable for in-vehicle applications and automatic guided vehicle market. With the extended power input from 9 to 48V DC and OVP/OCP/ESD surge protection, the system can power on and operate safely.

The BMAL box module also supports DFI's Adaptive Display Platform (ADP) Technology. It is an innovative panel PC solution that offers the flexibility of modularized integration of panel PC components for expedited product development and shortened time to market.

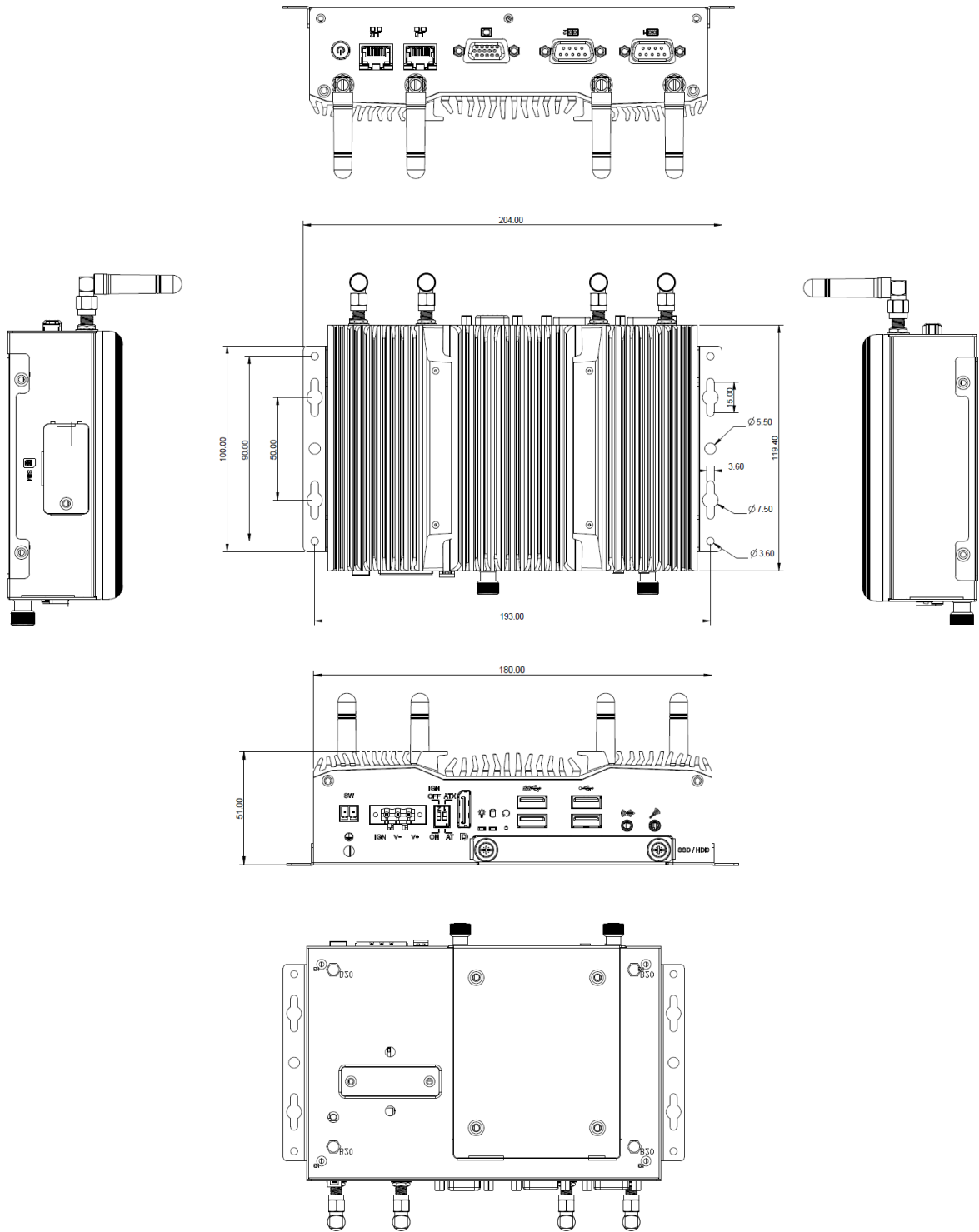
### System



▶ Standard Ratio Specifications

<b>SYSTEM</b>	<b>Processor</b>	Intel Atom® x5-E3940 Processor, Quad Core, 2M Cache, 1.6GHz (1.8GHz), 9.5W Intel® Celeron® Processor N3350, Dual Core, 2M Cache, 1.1GHz (2.4GHz), 6W	
	<b>Memory</b>	One 204-pin SODIMM up to 8GB	Single Channel DDR3L 1866MHz
	<b>BIOS</b>	Insyde SPI 128Mbit (supports UEFI boot only)	
<b>GRAPHICS</b>	<b>Controller</b>	Intel® HD Graphics	
	<b>Feature</b>	OpenGL 4.2, Direct X 11.1, OpenCL 1.2, OGL ES 3.0 HW Decode: H.264, MPEG2, VC1, VP8, H.265, MPEG4 HW Encode: H.264, MPEG2, MPEG4	
	<b>Display</b>	1 x DP++ 1 x VGA or DVI-D (DVI-D available upon request)	DP++: resolution up to 4096x2160 @ 60Hz VGA: resolution up to 2560x1600 @ 60Hz DVI-D: resolution up to 1920x1200 @ 60Hz
	<b>Triple Displays</b>	Panel Module, DP++, VGA or DVI-D	
<b>STORAGE</b>	<b>External</b>	1 x 2.5" SATA 3.0 Drive Bay (accessible)	1 x mSATA (shared by Half-size Mini-PCIe Socket)
<b>EXPANSION</b>	<b>Interface</b>	1 x Full-size Mini PCIe (USB/PCIe) 1 x Half-size Mini PCIe (USB/PCIe/mSATA) 1 x SIM Slot	
<b>AUDIO</b>	<b>Audio Codec</b>	Realtek ALC262	
<b>ETHERNET</b>	<b>Controller</b>	2 x Intel® I210IT PCIe (10/100/1000Mbps)	
<b>LED</b>	<b>Indicators</b>	1 x Power LED	1 x HDD LED
<b>I/O</b>	<b>Serial</b>	2 x RS-232/422/485 (DB9) Support 5V/12V Power	2 x RS-232/422/485 (available upon request)
	<b>Ethernet</b>	2 x GbE (RJ-45) (10/100/1000Mbps) 802.3 af PoE (PSE), Individual Port 15.4W (available upon request)	Support Jumbo Frame, IEEE1588v2, WOL, PXE
	<b>DIO</b>	4 x DI / 4 x DO (10-pin terminal block) (available upon request)	
	<b>Buttons</b>	1 x Power Button	1 x Reset Switch
	<b>Wi-Fi Antennas</b>	4 x Wi-Fi Module Antenna Hole	
	<b>USB</b>	2 x USB 3.0 (type A) 2 x USB 2.0 (available upon request)	2 x USB 2.0 (type A)
	<b>Display</b>	1 x DP++	1 x VGA or DVI-D (DVI-D available upon request)
	<b>Audio</b>	1 x Line-out	1 x Mic-in
	<b>Switch</b>	1 x AT/ATX Switch	1 x Ignition Power On/Off Switch
	<b>Remote Power On/Off</b>	1 x 2-pin Terminal Block	
	<b>Output &amp; Interval</b>	System Reset, Programmable via Software from 1 to 255 Seconds	
	<b>WATCHDOG TIMER</b>		
<b>ENVIRONMENT</b>	<b>Operating Temperature</b>	-40 to 70°C	
<b>OTHER FUNCTIONS</b>	<b>Ignition Power On/Off</b>	Auto Detect Boot-up & Shut-down Voltage for Low Power Protection Support 12V/24V/48V DC Input 7-level Delay Time On/Off Configuration I/O Switch Selectable Ignition Power On/Off	
	<b>Watchdog Timer</b>	System Reset, Programmable via Software from 1 to 255 Seconds	
	<b>Antenna</b>	4 x Antenna Hole	
<b>POWER</b>	<b>Type</b>	24 VDC Input (available upon request)	9~48 VDC Input (available upon request)
	<b>Connector</b>	3-pin Terminal Block	
<b>OS SUPPORT</b>	Windows 10 IoT Enterprise 64-bit Linux		
<b>STANDARDS AND CERTIFICATIONS</b>	<b>Certifications</b>	CE / FCC Class A	
<b>PATENT NO. (Taiwan)</b>	I670589		

Dimensions



## Optional Items

Optional Items	Part Number	Description
<b>HDD</b>	785-H25500G	2.5" SATA HDD, 500GB, RoHS
	785-H25320G	2.5" SATA HDD, 320GB, RoHS
	785-S25512G	2.5" SATA SSD, 512GB MLC, RoHS
	785-S25256G	2.5" SATA SSD, 256GB MLC, RoHS
	785-S25128G	2.5" SATA SSD, 128GB MLC, RoHS
	785-S25064G	2.5" SATA SSD, 64GB MLC, RoHS
	785-S25032G	2.5" SATA SSD, 32GB MLC, RoHS
<b>mSATA</b>	785-MS128GMF	mSATA mini, 128GB MLC, RoHS
	785-MS64GMF	mSATA mini, 64GB MLC, RoHS
	785-MS32GMF	mSATA mini, 32GB MLC, RoHS
	785-MS16GMF	mSATA mini, 16GB MLC, RoHS
<b>Wi-Fi</b>	761-110091-000G	Wi-Fi Kit, RoHS
<b>Power Cord</b>	785-PWRD	Power Cord, Standards (USA/EUR/CH), 1.8m, RoHS
<b>Power Adapter</b>	671-106013-000G	60W: 12VDC/5A, DC Cord 5.5*2.5mm, Pitch 5mm, LV6, RoHS
	671-112005-100G	120W: 24VDC/5A, DC Cord 5.5*2.5mm, Pitch 5mm, LV6, RoHS
<b>VESA Mount</b>	761-TPC000-000G	ACCESSORY WALL MOUNT KITS

785-XXX is a group number instead of a unique part number. Please contact your regional sales representative if you need more information.

## Matrix List

		Panel Module								
		PMKS070	PMKS101	PMKS121	PMKS150	PMKS156	PMKS170	PMKS185	PMKS190	PMKS215
<b>Box Module</b>	BMAL	V	V	V	V	V	V	V	V	V
	BMSD				V	V	V	V	V	V
	BMKH				V	V	V	V	V	V

## Packing List

• 1 Single box
• 1 3 pin Terminal Block Connector
• 1 2 pin Terminal Block Connector
• 2 Mini PCIe screw
• 4 SATA screw