

## **Product Design Advantages**

- Reduce design risk
- Fast time to market
- Off-the-shelf components
- › Wide processing range

## Standard Compatibility Support

- ARM-Cortex-A9 with NEON
- Comprehensive I/O
- > Linux & Android
- > Wide application set

## All the power you want - All the reliability you need

With the industry's best Price Power Performance Ratio (P³R), the HummingBoard offers 1 GHz per core, has a proven SoC and wide scalability. Its compatibility with standard ARMv7 CPU power, HardFP and neon Linux packages means it has the widest support for standard ARM binary software packages without the need to recompile them, and the absence of any moving parts makes it long-lasting. Built to comply with both commercial and industrial standards of embedding, the HummingBoard is composed of only the highest quality components.

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	HummingBoard-i1	HummingBoard-i2	HummingBoard-i2eX	HummingBoard-i4
System On Chip	i.MX6 Solo	i.MX6 Dual Lite	i.MX6 Dual	i.MX6 Quad
Core				
Processor Core	Single core ARM A9	Dual Lite core ARM A9	Dual core ARM A9	Quad core ARM A9
Processor Speed	1GHz (up to 1.2GHz)			
Graphics Processing Unit	Vivante GC880	Vivante GC880	Vivante GC2000	Vivante GC2000
3D GPU Support	OpenGL ES1.1/2.0	OpenGL ES1.1/2.0	OpenGL ES 1.1/2.0, Quad Shader	OpenGL ES 1.1/2.0, Quad Shader
Memory	32 bit, 512MB DDR3 @ 800Mbps	64 bit, 1GB DDR3 @ 800Mbps	64 bit, 1GB DDR3 @1066Mbps	64 bit, 2GB DDR3 @1066Mbps
Connectivity (PHY on Mo	odule)			
Wired Network	10/100 Mbps	10/100 Mbps	10/100/1000 Mbps*	10/100/1000 Mbps*
WiFi	Optional	Optional	Optional	$\odot$
Bluetooth	Optional	Optional	Optional	$\odot$
I/O Expansion (IC/Conne	ector on Carrier)			
HDMI 1080p with CEC	1.4, 3D support	1.4, 3D support	1.4, 3D support	1.4, 3D support
LVDS Display Out	$\otimes$	$\otimes$	$\odot$	$\odot$
UHS-1 Micro SD Interface	$\odot$	$\bigcirc$	$\odot$	$\bigcirc$
Powered USB 2.0	2	2	2	2
Powered Internal USB 2.0	$\otimes$	$\otimes$	2	2
Audio Out	PWM Mono Out	PWM Mono Out	Analog Stereo Out and MIC In	Analog Stereo Out and MIC I
Camera Interface Port	2 Lane MIPI CSI - 2			
mSATA II	$\otimes$	$\otimes$	$\otimes$	$\otimes$
PCI-Express 2.0	$\otimes$	$\otimes$	$\odot$	$\bigcirc$
GPIO Header	UART, 8 GPIO, SPI with 2CS, I2C **			
S/PDIF Output	$\odot$	$\bigcirc$	$\odot$	$\otimes$
RTC with Backup Battery	$\otimes$	$\otimes$	Battery provided seperately	Battery provided seperate
OS Support				
Linux	$\otimes$	<b>⊘</b>	$\bigcirc$	$\bigcirc$
Android	$\otimes$	$\odot$	$\odot$	$\bigcirc$
XBMC	$\otimes$	$\odot$	$\odot$	$\odot$
Mechanical and Electror	nic Specifications			
Main Voltage	5V	5V	5V	5V
Dimensions (W x L)	85mm x 56mm	85mm x 56mm	85mm x 56mm	85mm x 56mm

<sup>(\*) 1000</sup>Mbps link is limited to 470Mbps actual bandwidth due to internal chip busses limitation.

## **Applications**

- > Fleet Control
- > Smart Home
- › Digital Signage
- › Medical Usages
- › Agriculture Control
- › Machine Control
- Gaming

And much more...



<sup>(\*\*)</sup> Other functions are available via i.MX6 pin muxing.