	Company	Reference Design	Advantech	Device Solutions	Reference Design
		freescale	ADVANTECH Enabling an Intelligent Planet	device solutions.net	TQ
	Product Title (Nitrogen; etc)	QSB 	ROM-1210 	Opal i.MX53 	Mainboard MBa53 
Processor Subsystem	Processors Available	i.MX53	i.MX535/ i.MX536	i.MX53	i.MX53
	Power Management IC	Freescale MC34708	Dialog IC DA9053-3JHA1-A PMIC	Dialog DA9053	
Memory	DRAM	DDR3 (1GB)	DDR3 (512MB)	DDR3 (1GB)	DDR3 (1 GB)
	FLASH - Onboard - Footprint for NAND	N/A	1x (2GB)	1x (4GB)	32GB eMMC
	FLASH - Onboard - SPI	N/A	Yes	N/A	N/A
	FLASH - External - SD/MMC	1x	2x	N/A	1x
	FLASH - External - MicroSD	1x	N/A	N/A	N/A
	EEPROM - Onboard - I2C	N/A	N/A	N/A	64 kBit
Display	LCD - LVDS	1x 18-bit	2x 24-bit	N/A	Dual LVDS
	LCD - Expansion Port	1x 24-bit parallel RGB	1x 24-bit parallel RGB	N/A	1x
	EPD - Expansion Port	N/A	N/A	N/A	N/A
	HDMI	N/A (1x via Expansion)	N/A	N/A	N/A
	DVI	N/A	N/A	N/A	1x
	VGA	1x	N/A	N/A	1x
	RGB	N/A	N/A	N/A	N/A
Input	4-Wire Touch Interface	N/A	4-wire resistive type	Resistive 4-wire	1x
	Camera connector	N/A	N/A	N/A	N/A
	Keyboard Interface	N/A	6 x 6 matrix	N/A	N/A
	Configurable I/O	2x	20 pins 3.3V TTL level GPIOs	N/A	N/A
	Android Buttons (SW/HW)	Home, Back	N/A	N/A	N/A
Sensor	Ambient Light Sensor	N/A	N/A	N/A	N/A
	Accelerometer	Freescale MMA 8450	N/A	N/A	N/A
	Gyro	N/A	N/A	N/A	N/A
	eCompass	N/A	N/A	N/A	N/A
	FM Receiver - Onboard	N/A	N/A	N/A	N/A
Audio	Codec	Freescale SGTL5000	Freescale SGTL5000	N/A	Freescale SGTL5000
	Headphone Jack	1x	N/A	N/A	1x
	Speaker - Onboard Connector	N/A	N/A	N/A	N/A
	Microphone Jack	1x	N/A	N/A	1x
	Microphone - Onboard Connector	N/A	1x	N/A	N/A
	S/PDIF	N/A (1x via Expansion)	1x	N/A	N/A
Connectivity	USB STD - External - Host	2x	1x	N/A	N/A
	USB STD - External - Slave	N/A	N/A	N/A	N/A
	USB Micro - External - OTG	1	1x	N/A	N/A
	USB - Onboard - Host	N/A	N/A	N/A	3x
	USB - Onboard - Slave	N/A	N/A	N/A	N/A
	USB - Onboard - OTG	N/A	N/A	N/A	1x
	Ethernet (10/100MB/S) RJ45	1x	1x	N/A	2x
	SATA - External - (1.5/3GB/s)	1x	1x	N/A	N/A
	SATA - Onboard - (1.5/3GB/s)	N/A	N/A	N/A	1x
	SIM Card Socket	N/A	N/A	N/A	N/A
	Mini PCIe	N/A	N/A	N/A	N/A
	Serial Port - External	N/A	N/A	N/A	N/A
	Serial Port - Onboard	N/A	UART: 5x TTL level	N/A	2x
	CAN	N/A	1x (I-grade)	N/A	2x
	Other Connectivity	N/A	SPI, I2C	2x 168-pin HiRose with all i.MX53 signals	N/A
Debug	JTAG - External	1x	N/A	N/A	N/A
	JTAG - Onboard	N/A	N/A	N/A	1x
	Serial - External	1x	1x debug port	N/A	N/A
	Reset / Boot Switches	Yes	N/A	N/A	Yes
	Power on / off Switch	Yes	N/A	N/A	Yes
	Debug LED	Yes	N/A	N/A	Yes
	Power Source	N/A	N/A	Yes / No	N/A
OS Support	Linux	Freescale (Linux 2.6.35)	Advantech (Linux 2.6.35)	Trygtech	PDX Dist (Linux 2.6.34)
	Android	Adeneo (Gingerbread & ICS)	Advantech (Android 2.3)	Trygtech Gingerbread & ICS	N/A
	WinCE	Adeneo (WinCE 7)	Advantech (WEC7)	GuruCE WinCE 7	WinCE 7
Misc	Power Consumption	5V, 2A/1.4A(max/typical)	3.3V & 3.6V, 0.519W (Normal)	5V, 2A/0.7A(max/typical)	12 VDC
	Form Factor	76 x 76mm 8-L PCB	68 x 68 x 7.5 mm 8L PCB	60mm x 60mm 10 layer PCB	170 x 170 mm
	Design File Format	Cadence	Cadence	Altium	
	Expansion Boards (Wifi, BT, 3G, Debug, etc)	Card Access SDIO, WiFi/BT, HDMI/LCD	RTX-CSB (205mmx155mm)	Opal Development Kit. 160x100mm. Ethernet, USB (4 ports), VGA, LVDS x 2, 7" TFT LCD, Audio, WiFi/BT, GPS, CAN, Digital I/O, Accelerometer, SATA	N/A
	Target Market 1	Industrial /Automotive (Infotainment)	Industrial Control HMI / KIOSK	Industrial	Industrial / Automotive HMI / Infotainment
	Target Market 2	Consumer (Portable Device, Ebook)	Portable Device Medical Device	Automotive Displays	Medical Monitor / Portable
	Office Location(s)	Austin, Shanghai, Munich	Taiwan, U.S., Europe, China	New Zealand	Germany, Europe, US
	Pricing			$199 samples, $149 @1kpcs	
	Qualifications		CE/FCC Class A Op temp. wide to -40 ~ 85C		