

Colibri

ARM Module Family

- **0.45 - 1.2 W** Low Power Consumption
- **68 x 37 mm** Small Form Factor
- **Fully Compatible** Product Family
- **208 MHz - 4x 1.3 GHz** Scalable Performance
- **Free Support** Provided Directly by Developers
- **10+ Years** Product Lifecycle



High
Performance



Low Power



Fast Boot



Direct
Support



Extensive
Ecosystem






Long
Lifecycle



Global
Presence

Colibri Computer Modules

	Colibri T30 (IT)	Colibri T20 (IT)	Colibri iMX6S/6DL (IT)
			
SOC / CPU	NVIDIA® Tegra 3 4x ARM® Cortex-A9 @ up to 1.4GHz	NVIDIA® Tegra 2 2x ARM® Cortex-A9 @ 1GHz	NXP®/Freescale i.MX 6S/DL 1x/2x ARM® Cortex-A9 @ up to 1GHz

Memory

RAM	1GB DDR3L (32 Bit)	256MB / 512MB DDR2 (32 Bit)	256MB DDR3 (32 Bit) / 512MB DDR3 (64 Bit)
Flash	4GB eMMC (8 Bit)	512MB / 1GB SLC NAND (8 Bit)	4GB eMMC (8 Bit)

Connectivity

External Bus	16 Bit	32 Bit	32 Bit
USB Host / Device	1x Host / 1x OTG (High Speed)	1x Host / 1x OTG (High Speed)	1x Host / 1x OTG (High Speed)
I2C	3x + DDC	2x + DDC	3x
SPI	6x	6x	4x
One-Wire	1x	1x	–
SD/MMC	3x	4x	3x
UART / IrDA	5x / 1x	5x / 1x	5x / 1x
PWM	4x	4x	4x
GPIOs	up to 158	up to 153	up to 154
Analogue Input	4x	4x	4x
Ethernet	10/100 Mbit	10/100 Mbit	10/100 Mbit IEEE1588
CAN	–	–	2x

Multimedia




Display Controller	Dual, Independent	Dual, Independent	Single
Video Decoder	✓	✓	✓
2D / 3D Acceleration	✓ / ✓	✓ / ✓	✓ / ✓
HDMI	V1.4a 1080p (1920 x 1080)	V1.3 1080p (1920 x 1080)	V1.4a 1080p (1920 x 1080)
VGA	1920 x 1200	1600 x 1200	–
RGB	2048 x 1536 x 24bpp	1920 x 1200 x 24bpp	1920 x 1200 x 24bpp
Resistive Touch	4-wire	4/5-wire	4-wire
Analog Audio	Line-In, Line-Out, Mic-In	Line-In, Line-Out, Mic-In	Line-In, Line-Out, Mic-In
Camera Parallel Interface	1x	1x	2x

Software

Operating Systems	Windows Embedded Compact 7 / 2013 & Linux	Windows Embedded Compact 7 / CE 6.0 & Linux	Windows Embedded Compact 7 / 2013 & Linux
Runtime License	Windows Embedded Compact 2013	Windows Embedded Compact 7	Windows Embedded Compact 2013

Physical

Size	67.6 x 36.7 x 6.2 mm	67.6 x 36.7 x 6.2 mm	67.6 x 36.7 x 6.2 mm
Temperature	0° to 70°C / IT: -40° to 85°C	0° to 70°C / IT: -40° to 85°C	0° to 70°C / IT: -40° to 85°C
Power Dissipation	1.2 - 5.1 W	1.1 - 2.8 W	0.6 - 1.8 / 2.3 W
Minimum Availability	2025	2025	2028

	 Colibri iMX7S/7D	 Colibri VF61 IT²	 Colibri VF50 (IT)²
SOC / CPU	NXP®/Freescale i.MX 7S/D 1x / 2x Cortex-A7 @ up to 1GHz 1x Cortex-M4 @ 200MHz	NXP®/Freescale Vybrid VF6xx 1x Cortex-A5 @ 500MHz 1x Cortex-M4 @ 167MHz	NXP®/Freescale Vybrid VF5xx 1x ARM® Cortex-A5 @ 400MHz

Memory

RAM	256MB / 512MB DDR3 (32 Bit)	256MB DDR3 (16 Bit) (or 128MB with ECC)	128MB DDR3 (16 Bit) (or 64MB with ECC)
Flash	512MB SLC NAND (8 Bit)	512MB SLC NAND (8 Bit)	128MB SLC NAND (8 Bit)

Connectivity

External Bus	16 Bit ¹	–	–
USB Host / Device	1x USB Host ³ (High Speed), 1x USB OTG (High Speed)	1x Host / 1x OTG (High Speed)	1x Host / 1x OTG (High Speed)
I2C	3x	4x	4x
SPI	4x	4x + 2x QSPI	4x + 2x QSPI
One-Wire	–	–	–
SD/MMC	2x	2x	2x
UART / IrDA	7x / 1x	5x / 1x	5x / 1x
PWM	20x	17x	18x
GPIOs	up to 126	up to 99	up to 103
Analogue Input	4x	12x	16x
Ethernet	10/100 Mbit IEEE1588 (+2nd RGMII/RMII/MII) ³	10/100 Mbit IEEE1588 (+2nd RMII)	10/100 Mbit IEEE1588 (+2nd RMII)
CAN	2x	2x	2x

Multimedia

Display Controller	Single	Single	Single
Video Decoder	–	–	–
2D / 3D Acceleration	✓ / –	✓ / –	✓ / –
HDMI	–	–	–
VGA	–	–	–
RGB	1920 x 1080 x 24bpp	1024 x 768 x 24bpp	1024 x 768 x 24bpp
Resistive Touch	4-wire	4-wire	4-wire
Analog Audio	Line-In, Line-Out, Mic-In	Line-In, Line-Out, Mic-In	–
Camera Parallel Interface	1x	1x	1x

Software

Operating Systems	Windows Embedded Compact (Q4 2016), Linux	Windows Embedded Compact 7 / 2013 / CE 6.0, Linux & eCos	Windows Embedded Compact 7 / 2013 / CE 6.0 & Linux
Runtime License	–	Windows Embedded CE 6.0	Windows Embedded CE 6.0

Physical

Size	67.6 x 36.7 x 6.2 mm	67.6 x 36.7 x 6.2 mm	67.6 x 36.7 x 6.2 mm
Temperature	-20°C to 85°C	-40° to 85°C	0° to 70°C / IT: -40° to 85°C
Power Dissipation	TBD	0.6 - 0.9 W	0.5 - 0.8 W
Minimum Availability	2027	2028	2028

Note 1: 16-Bit bus multiplexed and not compatible with other SOMs.

Note 2: Security and encryption features available on request for Colibri VF61 and Colibri VF50 SOMs.

Note 3: Not available on Colibri iMX7S

Colibri Ecosystem

Toradex Bootloaders, Operating System Images and Board Support Packages (BSPs) are designed to be very configurable. This relieves the application developer from the burden of creating and maintaining a custom OS image. Instead, the necessary adaptations can be made by configuring settings and adding customized files to the onboard flash file system. Our Colibri standard images and BSPs are built to production quality grade.



Scale 1:1

Windows Embedded Compact

Toradex provides pre-built Windows Embedded Compact images (CE 5 to WEC 2013) for Colibri computer modules. The run-time license is already included in the price of the module. BSPs and Workspaces are available on our developer website at no extra cost.

Linux

Our embedded Linux is based on the Yocto Project compatible Ångström distribution using the OpenEmbedded build framework. The Colibri Linux BSPs include driver support for all integrated peripherals on the module.

Software Libraries and Tools

Toradex provides free software libraries for additional interfaces and features including Camera Interfaces, SPI, PWM, I2C, CAN and cloud connectivity. A full tool-chain for bootloader and OS updates is also available for download.

Support

Along with our products we offer extensive free technical support. A wide variety of online resources can be accessed via the Toradex Developer Center, including knowledge base, video tutorials, software and CAE data.

You can access the developer resources at <http://developer.toradex.com>. For getting in direct contact with our engineers, please send an email to colibri@toradex.com.

Colibri Carrier Boards

Colibri Evaluation Board



Iris Carrier Board



Viola & Viola Plus Carrier Board



Aster Carrier Board



Connectivity

Memory Card Sockets	SD/MMC	Micro SD	Micro SD	SD/MMC
USB Host / Device / OTG	4x / 1x / 1x	1x / - / 1x	2x / 1x* / -	2x / 1x / -
IrDA	✓	-	-	-
GPIOs	up to 158	up to 26	up to 35	up to 39
Ethernet	10/100 Mbit	10/100 Mbit	10/100 Mbit	10/100 Mbit
Camera Parallel Interface	1x	-	1x (On header)*	1x
UART	2x RS232, 1x RS422/485	3x RS232	3x TTL	2x TTL, 1x USB
CAN	1x	-	1x (Available with Colibri VFxx and iMX)	1x (Available with Colibri VFxx and iMX)
Switches / LEDs	6x / 4x	-	-	- / 3x
RTC on Board	✓	✓	✓*	✓
Compatability	-	-	-	Arduino UNO and Raspberry Pi B+

Multimedia

Video Out	VGA / DVI-I	DVI-I	-	VGA
LCD Interface	RGB / LVDS	RGB / LVDS	RGB	RGB
Resistive Touch	4/5-wire	4/5-wire	4-wire	4-wire
Audio	Line-In, Line-Out, Mic-In	Line-In, Line-Out, Mic-In	Line-In, Line-Out, Mic-In (On header)*	Line-In, Line-Out, Mic-In

Physical

Supply Voltage Range	7 - 27V DC	6 - 27V DC	5V DC +/- 5%	5V DC +/- 5%
Size	200 x 200 mm	100 x 72 mm (Pico ITX)	74 x 74 mm	100 x 80 mm
Altium CAE Data Freely Available	✓	✓	✓	✓
Characterization	<ul style="list-style-type: none"> - For flexible exploration of the modules - Platform of choice for development - Fanless use 	<ul style="list-style-type: none"> - Small form factor - Ideally suited for volumes - Fanless use 	<ul style="list-style-type: none"> - Small form factor & Ultra low cost - Ideal for volume production - Fanless use 	<ul style="list-style-type: none"> - Compatible with Arduino UNO® & Raspberry Pi® B+ - Ideal of evaluation of peripherals

* Only assembled on Viola Plus



Your One-Stop Provider for Embedded Technology

Toradex specializes in designing and delivering standardized, high performance ARM based computer modules for the embedded market. Our hardware and software offer unmatched configurability and enable you to quickly and cost-effectively transform concepts into successful products. The small form factor and low power design make our products ideal for rugged, industrial and mobile applications.



The key hardware and software components are designed and developed by our engineering team in Switzerland, with 100% commitment to ease-of-use, performance and quality. Direct support is provided by these very same developers and the wealth of free reference designs, software tools and libraries allow to massively speed up your development while reducing development risks.



Toradex products meet the highest reliability and quality standards and are used by a huge customer base in many different market segments such as medical, laboratory, automotive, digital signage, aerospace, industrial automation, test & measurement, defense, etc.



Toradex frees up your resources by providing the computer modules with complimentary life-time product maintenance. You don't have to worry about hardware changes or bugs in the operating system.



Furthermore, Toradex cares greatly about securing the supply chain - especially when your product enters volume production. Our products are sourced from multiple, selected manufacturing partners and delivered through the various local Toradex sales offices around the world.

Locations

Switzerland | USA | China | India | Vietnam | Japan | Brazil



Toradex Network



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