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MÓDULOS QSEVEN



Las últimas generaciones de procesadores embebidos ultra móviles encajan a la perfección en el formato Qseven®. Pues permite realizar diseños de baja potencia , pequeño tamaño y de muy baja altura, basados en estos procesadores de estos procesadores.

El estándar Q7 ha sido definido para soportar arquitecturas x86 y ARM. Lo que ofrece una gran flexibilidad al cliente, permitiéndoles usar ambos tipos de arquitecturas en sus diseños, sin más que cambiar de módulo.

BAJA POTENCIA

Qseven® está definido para un consumo de energía máximo de 12 W. Está diseñado para que funcione por una sola fuente de 5 Voltios y proporciona todas las señales adicionales para la gestión de la batería. Este simple requisito de alimentación permite pequeñas soluciones móviles alimentadas por baterías compactas de dos celdas.

APLICACIONES MÓVILES

Qseven® es un estándar optimizado dirigido a aplicaciones de baja potencia y móviles / ultra-móviles.

CONECTOR

Qseven® no requiere un costoso conector placa a placa. En su lugar, utiliza una ranura de tarjeta MXM2 muy asequible con 230 pines en una configuración de 0,5 mm.

DISEÑO DELGADO

Al comparar con COM Express® Basic & Compact permite envolver mecánicos más finos

PROYECTOS REALES

Sistema infotainment para trenes, sistema embarcado para autobuses, PLC para automatización industrial, parquímetro, sistema portátil de codificación de audio/video, sistema de detección de fatiga para conductores de autobús, equipo para control sistemas de iluminación pública...

MÓDULOS QSEVEN

Intel Atom E3800 y Celeron (Bay Trail)



MÓDULOS EQUIVALENTES (pregunta a tu comercial o embebidos@matrix.es)

Fabricante	Referencia	CPUs
ADVANTECH	SOM-3567	Atom E3845, E3827, E3825, E3815, Celeron J1900

DISIPADORES

CONGATEC	
conga-QA3/HSP-T	Standard heatspreader for Qseven module conga-QA3. Standoff with 2.5mm thread
conga-QA3/HSP-B	COM Express Connector AB, High Speed (10Gbs), Type 7
conga-QA3/CSP-T	Passive cooling solution for Qseven module conga-QA3. All standoffs are M2.5mm thread.
conga-QA3/CSP-B	Passive cooling solution for Qseven module conga-QG. All standoffs are with 2.7mm bore hole.

CONGATEC	
CONGA-QA3	
Formfactor	Qseven
CPU	Intel® Atom™ E3845 (4 x 1.91 GHz, 2MB L2 cache, 10 W)
	Intel® Atom™ E3827 (2 x 1.75 GHz, 1MB L2 cache, 8 W)
	Intel® Atom™ E3826 (2 x 1.46 GHz, 1MB L2 cache, 7 W)
	Intel® Atom™ E3825 (2 x 1.33 GHz, 1MB L2 cache, 6 W)
	Intel® Atom™ E3815 (1 x 1.46 GHz, 512kB L2 cache, 5 W)
	Intel® Celeron® J1900 (4 x 2 GHz, 2MB L2 cache, 10 W)
	Intel® Celeron® N2930 (4 x 1.86 GHz, 2MB L2 cache, 7,5 W)
	Intel® Celeron® N2807 (2 x 1.58 GHz, 1 MB L2 cache, 4,3 W)
	Intel® Atom™ E3805 (2 x 1.33 GHz, 1 MB L2 cache, 3 W)
DRAM	max. 8GByte onboard DDR3L with up to 1333 MT/s
Flash	4GB, 8Gb y 16GB eMMC (en versiones estándar)
Ethernet	Intel® I210 Gigabit Ethernet controller
I/O Interfaces	6 x USB 2.0
	1 x USB 3.0
	1 x SDIO
	3 x PCI Express™
	I²C bus
	LPC bus
Sound	High Definition Audio Interface
Graphics	Intel® HD Graphics Gen 8
Congatec board Controller	Multi Stage Watchdog, non-volatile User Data Storage, Manufacturing and Board information, Board Statistics, BIOS Setup, Data Backup, I²C bus (fast mode, 400 kHz, multi-master), Power Loss Control
Embedded BIOS Features	OEM Logo
	OEM CMOS Defaults
	LCD Control
	Display Auto Detection
	Backlight Control
	Flash Update
Operating Systems	AMI Aptio UEFI
	Microsoft® Windows® 8
	Microsoft® Windows® 7
	Windows Embedded Compact 7
	Microsoft Windows 8 Embedded
	Linux
Power Consumption	Typ. application 4.5W...12W
Temperature	Operating: 0 to +60 °C commercial grade -40 to +85 °C industrial grade
Video Interfaces	LVDS 2x24, DisplayPort, HDMI

MÓDULOS QSEVEN

Intel Atom E3900, Celeron y Pentium (Apollo Lake)



MÓDULOS EQUIVALENTES (pregunta a tu comercial o embebidos@matrix.es)

Fabricante	CPUs
ADVANTECH	Atom E3930, E3940, E3950, Celeron N3350, Pentium N4200
AXIOMTEK	Pentium N4200, Celeron N3350

DISIPADORES

CONGATEC	
conga-QA5/i-CSP-T	Passive cooling solution for Qseven module conga-QA5 with lidded Intel Atom processor. All standoffs are M2.5mm thread
conga-QA5/i-CSP-B	Passive cooling solution for Qseven module conga-QA5 with lidded Intel Atom processor. 2.7mm bore hole
conga-QA5/i-HSP-T	Standard heatspreader for Qseven module conga-QA5 with lidded Intel Atom processor. M2.5mm thread
conga-QA5/i-HSP-B	Standard heatspreader for Qseven module conga-QA5 with lidded Intel Atom processor. 2.7mm bore hole
conga-QA5/CSP-T	Passive cooling solution for Qseven module conga-QA5 with open silicon Intel Pentium and Celeron processor. M2.5mm thread.
conga-QA5/CSP-B	Passive cooling solution for Qseven module conga-QA5 with open silicon Intel Pentium and Celeron processor. 2.7mm bore hole
conga-QA5/HSP-T	Standard heatspreader for Qseven module conga-QA5 with open silicon Intel Pentium and Celeron processor. M2.5mm thread.
conga-QA5/HSP-B	Standard heatspreader for Qseven module conga-QA5 with open silicon Intel Pentium and Celeron processor. 2.7mm bore hole.

conga-QA5	
Formfactor	Qseven
CPU	Intel® Atom™ x7-E3950 (4 x 1.6 / 2.0 GHz, 2MB L2 cache, 12W)
	Intel® Atom™ x5-E3940 (4 x 1.6 / 1.8 GHz, L2 cache 2MB, 9W)
	Intel® Atom™ x5-E3930 (2 x 1.3 / 1.8 GHz, L2 cache 1MB, 6.5W)
	Intel® Celeron® N3350 (2 x 1.1 / 2.4 GHz, L2 cache 1MB, 6W)
	Intel® Pentium® N4200 (4 x 1.1 / 2.5 GHz, L2 cache 2MB, 6W)
	Intel® Celeron® N3010 (2 x 1.04 GHz, 2MB L2 cache, 4 W)
DRAM	Dual Channel up to 8GB onboard DDR3L with 1867 MT/s
Flash	8GB y 16GB eMMC Flash
Ethernet	Intel® I210 (Industrial) / I211 (Commercial) Gigabit Ethernet Controller
I/O Interfaces	3 x PCIe Gen2
	1 x USB 3.0
	5 x USB 2.0
	2 x SATA3
	SDv3
	SM-Bus
	I ² C bus
	UART
Sound	High Definition Audio Interface
Graphics	Intel® Gen 9 LP Graphics
Board Controller	Multi Stage Watchdog, non-volatile User Data Storage, Manufacturing and Board information, Board Statistics, BIOS Setup, Data Backup, I ² C bus (fast mode, 400 kHz, multi-master), Power Loss Control
Embedded BIOS Features	AMI Aptio® 2.X (UEFI) BIOS
	8 MByte serial SPI firmware flash
	OEM CMOS Defaults
	LCD Control
	Display Auto Detection
	Backlight Control
Operating Systems	Flash Update
	Microsoft Windows IoT Enterprise
	Microsoft Windows IoT Core
	Microsoft Windows 10
	Linux
	Yocto
Power Consumption	Android 6.0
	VxWorks 7.0
	Typ. application 6W...12W
Temperature	Operating: 0 to +60 °C commercial grade -40 to +85 °C industrial grade
Video Interfaces	DisplayPort 1.2 up to 4096x2160@60Hz or HDMI 1.4b up to 3840x2160@30Hz
	18/24-bit Single/Dual Channel LVDS, resolutions up to 1920x1200@60Hz ESA standard or JEIDA data mapping Automatic Panel Detection via EDID/EPI shared with eDP 1.3 supporting up to 3840x2160@60 Hz

MÓDULOS QSEVEN

AMD G-series 2ª generación



DISIPADORES	
CONGATEC	
QG/HSP-T	Standard heatspreader for Qseven module conga-QG. All standoffs are M2.5mm thread.
QG/HSP-B	Standard heatspreader for Qseven module conga-QG. All standoffs are with 2.7mm bore hole.
QG/CSP-T	Passive cooling solution for Qseven module conga-QG. All standoffs are M2.5mm thread.
QG/CSP-B	Passive cooling solution for Qseven module conga-QG. All standoffs are with 2.7mm bore hole.

	CONGATEC conga-QG
Formfactor	Qseven
CPU	AMD Embedded GX-210HA (2 x 1.0 GHz, L2 cache 1MB, 9 W) AMD Embedded GX-210JA (2 x 1.0 GHz, L2 cache 1MB, 6W) AMD Embedded GX-209HA (2 x 1.0GHz, L2 cache 1MB, 9W) AMD Embedded GX-412HC (4 x 1.2 GHz, L2 cache 2MB, 7 W) AMD Embedded GX-212JC (2 x 1.2 GHz, L2 cache 1 MB, 6 W)
DRAM	max. 8GB ECC with up to DDR3L-1333
Flash	4GB y 8GB eMMC
Ethernet	Gigabit Ethernet
I/O Interfaces	4 x PCI Express 2.0 2 x SATA 2.0 3Gb/s 1 x USB 3.0 5 x USB 2.0 LPC bus SM-Bus I²C bus SDIO UART
Sound	High Definition Audio Interface
Graphics	Integrated AMD Radeon™ HD 8000E Graphics
Congatec board Controller	Multi Stage Watchdog, non-volatile User Data Storage, Manufacturing and Board information, Board Statistics, BIOS Setup, Data Backup, I²C bus (fast mode, 400 kHz, multi-master), Power Loss Control
Embedded BIOS Features	AMI Aptio UEFI
Operating Systems	Microsoft® Windows® 8 Microsoft® Windows® 7 Linux Windows Embedded Compact 7 Microsoft Windows 8 Embedded Microsoft® Windows® embedded Standard
Power Consumption	Typ. application 4.5W...12W
Temperature	Operating: 0 to +60 °C commercial grade -40 t o +85 °C industrial (for some referen-ces)
Video Interface	18/24-bit LVDS single Dual chanel, 1920x1200@60Hz DisplayPort 1.2 ó HDMI 1.4a

MÓDULOS QSEVEN

Accesorios



conga-QKIT

ACCESORIOS COM EXPRESS Q7	
CONGATEC	
conga-QEVAL 2.0	Evaluation platform for Qseven 2.0
conga-QKIT	Starterkit for Qseven including conga-QEVAL, conga-LDVI/EPI, conga-FPA2, Dual DVI-D ADD2 Card, ATX power supply,
conga-DP/HDMI 4k adapter	The conga-DP/HDMI 4k adapter is used to convert the digital display interface (DDI) to the DisplayPort or HDMI connector interface
conga-Qseven/SBM3	Mobility Starter Kit
conga-MCB/Qseven Cable KiT	Complete cable kit for Qseven mini carrier board
Qseven MXM Connector Aces	Socket for Qseven Carrier Boards. 10pcs package. ACES standard type, SMT, lead free, 230 positions, 0.50mm pitch, 7.8mm height.
conga-LDVI/EPI	LVDS to DVI converter board for digital flat panels with onboard EEPROM

MÓDULOS SMARC



Los 314 pines del conector SMARC 2.0, que también se utiliza para el estándar de tarjeta gráfica MXM 3.0, proporcionan espacio para hasta cuatro salidas de video, subrayando la idoneidad de SMARC 2.0 para aplicaciones multimedia.

INTERFAZ DE VÍDEO

SMARC 2.0 ofrece una amplia gama de interfaces de vídeo internas y externas. Dos puertos para pantalla (DP++) de modo dual están disponibles para conexiones de pantalla externas flexibles a través de DisplayPort, HDMI o VGA. Para pantallas internas se implementa LVDS de 2x24 bits. Se define un uso alternativo para soportar dos interfaces DisplayPort (eDP) o MIPI Display Interface.

BAJA POTENCIA

SMARC 2.0 está definido sólo para aplicaciones de bajo consumo de energía. Puede funcionar con una alimentación de 3,3 V o 5 V CC y proporciona todas las señales adicionales para la gestión de la batería.

DOS INTERFACES ETHERNET

SMARC 2.0 implementa dos puertos Gigabit Ethernet, lo cual es una ventaja particular para las aplicaciones IoT o Industry 4.0. Ambos puertos Ethernet proporcionan SDP (Software Defined Pins) para permitir el protocolo IEEE 1588 Precision Time Protocol (PTP) basado en hardware.

INTERFACES DE CÁMARA

SMARC 2.0 proporciona todas las señales necesarias para admitir cámaras digitales. Para ello, se han implementado dos MIPI CSI serie (Camera Serial Interface).

INALÁMBRICO

SMARC 2.0 proporciona un área especial en el módulo que se dedica a la colocación de los conectores de RF en miniatura para permitir interfaces inalámbricas como WLAN y Bluetooth.

MÓDULOS SMARC

Intel Atom E3900, Celeron y Pentium (Apollo Lake)

	CONGATEC conga-SA3	TQ TQMxE39S
Formfactor	SMARC	SMARC
CPU	Intel® Atom™ x7-E3950 (4 x 1.6 / 2.0 GHz, 2MB L2 cache, 12W)	Intel® Atom™ x7-E3950 (4 x 1.6 / 2.0 GHz, 2MB L2 cache, 12W)
	Intel® Atom™ x5-E3940 (4 x 1.6 / 1.8 GHz, L2 cache 2MB, 9W)	Intel® Atom™ x5-E3940 (4 x 1.6 / 1.8 GHz, L2 cache 2MB, 9W)
	Intel® Atom™ x5-E3930 (2 x 1.3 / 1.8 GHz, L2 cache 1MB, 6.5W)	Intel® Atom™ x5-E3930 (2 x 1.3 / 1.8 GHz, L2 cache 1MB, 6.5W)
	Intel® Celeron® N3350 (2 x 1.1 / 2.4 GHz, L2 cache 1MB, 6W)	Intel® Celeron® N3350 (2 x 1.1 / 2.4 GHz, L2 cache 1MB, 6W)
	Intel® Pentium® N4200 (4 x 1.1 / 2.5 GHz, L2 cache 2MB, 6W)	Intel® Pentium® N4200 (4 x 1.1 / 2.5 GHz, L2 cache 2MB, 6W)
DRAM	up to 8GB onboard LPDDR4 with 2400MT/s	4 / 8 GB LPDDR4
Flash	eMMC 5.0 onboard flash up to 64 GByte	Up to 64 GB eMMC flash, soldered
Ethernet	up to 2x Intel® I210 (Industrial) /I211 (Commercial) Gigabit Ethernet Controller with SDP support 2x Real Time Trigger	up to 2x Intel® I210 (Industrial) /I211 (Commercial) Gigabit Ethernet Controller with SDP support 2x Real Time Trigger
I/O Interfaces	2 x USB 3.0	2 x USB 3.0
	4 x USB 2.0	4 x USB 2.0
	1 x SATA3	1 x SATA3
	SDIO	
	up to 4x PCIe Gen2	up to 4x PCIe Gen2
	2 x I²C bus	
	2 x SPI	
	4 x UART	
	optional M.2 1216 WiFi module (soldered down)	
Sound	High Definition Audio Interface	High Definition Audio Interface
Graphics	Intel® Gen 9 HD Graphics with support for DirectX 12 OpenGL 4.3 OpenCL 2.0 OpenGL ES 3.0 MPEG2 full HW acceleration with H.265/HEVC decoding and encoding MVC and 2x independent display support in 4K VP9 PAVP 2.0 HDCP 1.4 (wired), HDCP 2.0	Intel® Gen 9 HD Graphics with support for DirectX 12 OpenGL 4.3 OpenCL 2.0 OpenGL ES 3.0 MPEG2 full HW acceleration with H.265/HEVC decoding and encoding MVC and 2x independent display support in 4K VP9 PAVP 2.0 HDCP 1.4 (wired), HDCP 2.0 (wireless)
Board Controller	Multi Stage Watchdog, non-volatile User Data Storage, Manufacturing and Board information, Board Statistics, BIOS Setup, Data Backup, I²C bus , Power Loss Control	TQMx86 board-controller with Watchdog and TQ flexiCFG
Embedded BIOS	AMI Aptio UEFI	AMI Aptio UEFI
Operating Systems	Microsoft® Windows® 10	
	Linux	
	Wind River VxWorks 7	
	Android	
	Microsoft® Windows IoT Core	
Temperature	Operating: 0 to +60 °C commercial grade -40 to +85 °C industrial grade	Operating: -40 to +85 °C industrial grade
Video Interfaces	Dual channel LVDS transmitter support for flat panels with 2x24 bit data mapping up to a resolution of 1920x1200 @60Hz shared with eDP or 2x MIPI-DSI x4 (option)	
	DisplayPort 1.2 up to 4096x2160px or HDMI 1.4b up to 3840x2160px	
	1x MIPI-CSI x4 and 1x MIPI-CSI x2	



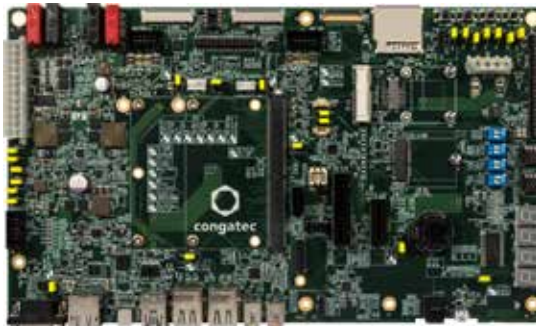
MÓDULOS SMARC

Intel Atom E3900, Celeron y Pentium (Apollo Lake)



conga-SA3

DISIPADORES	
CONGATEC	
conga-SA5/i-CSP-T	Passive cooling solution for SMARC 2.0 module conga-SA5 with lidded Intel Atom processor. All standoffs are M2.5mm thread
conga-SA5/i-CSP-B	Passive cooling solution for SMARC 2.0 module conga-SA5 with lidded Intel Atom processor. All standoffs are with 2.7mm bore hole
conga-SA5/i-HSP-T	Standard heatspreader for SMARC 2.0 module conga-SA5 with lidded Intel Atom processor. All standoffs are M2.5mm thread
conga-SA5/i-HSP-B	Standard heatspreader for SMARC 2.0 module conga-SA5 with lidded Intel Atom processor. All standoffs are with 2.7mm bore hole.
conga-SA5/CSP-T	Passive cooling solution for SMARC 2.0 module conga-SA5 with open silicon Intel Pentium and Celeron processor. All standoffs are M2.5mm thread.
conga-SA5/CSP-B	Passive cooling solution for SMARC 2.0 module conga-SA5 with open silicon Intel Pentium and Celeron processor. All standoffs are with 2.7mm bore hole
conga-SA5/HSP-T	Standard heatspreader for SMARC 2.0 module conga-SA5 with open silicon Intel Pentium and Celeron processor. All standoffs are M2.5mm thread.
conga-SA5/HSP-B	Standard heatspreader for SMARC 2.0 module conga-SA5 with open silicon Intel Pentium and Celeron processor. All standoffs are with 2.7mm bore hole.
TQ	
N/A	



conga-SEVAL

ACCESORIOS SMARC	
CONGATEC	
conga-SEVAL	Evaluation Carrier Board for SMARC 2.0 modules
conga-ACA2	MIPI CSI 2.0 dual camera module for evaluation with SGET standard flat foil interface
conga-MITX/eDP to DP Adapter	eDP to standard DisplayPort evaluation adapter for congatec Mini-ITX and SMARC 2.0
cab-MITX-eDP 1-1	Standard heatspreader for SMARC 2.0 module conga-SA5 with open silicon Intel Pentium and Celeron processor. All standoffs are with 2.7mm bore hole.

MÓDULOS COM EXPRESS

INTERFACES

COM Express® define hasta 440 pines de interconexión entre el módulo COM Express® y la placa base. Las interfaces más antiguas, como PCI, ATA en paralelo, son compatibles con los módulos heredados de tipo 2. Los módulos de tipo 6 cuentan con canales PCI Express® 2.0 adicionales, USB 3.0, 3 salidas DisplayPort / HDMI y ya no multiplexan el puerto PEG con señales gráficas.

TAMAÑO

COM Express® describe cuatro tamaños diferentes. Los módulos de baja potencia tipo 10 se implementan utilizando el tamaño Mini (84x55mm²). Los módulos de tipo 6 se implementan para los factores de forma compacto (95 x 95 mm²) y básico (95 x 125 mm²), mientras que los módulos de tipo 7 sólo están disponibles actualmente en tamaño básico. El tamaño ampliado (155x110 mm²) es una extensión potencial para los módulos de tipo 7.

DISEÑO TÉRMICO

Al igual que Qseven® y SMARC, la definición COM Express® incluye un difusor de calor que actúa como interfaz térmica entre el módulo COM Express® y la solución de refrigeración del sistema. Todos los componentes generadores de calor se conducen térmicamente al difusor de calor para evitar puntos calientes. Los disipadores térmicos y las soluciones de refrigeración para los módulos de alta potencia utilizan las tuberías de calor planas de alta eficiencia, patentadas por congatec, para permitir el máximo rendimiento y la máxima fiabilidad.

PCI EXPRESS

COM Express® ofrece hasta 32 canales PCI Express®. Esto permite al cliente equipar su aplicación de PC embebida con la siguiente generación de rendimiento de PC. PCI Express® es una interfaz de bajo número de pines con un ancho de banda máximo por pin. Definido para un ancho de banda máximo de hasta 8 GBit/s por canal y sentido.

SERVER-ON-MODULE

El recién introducido diseño de pins Tipo 7, se generó para habilitar aplicaciones de tipo servidor. Cuenta con hasta cuatro puertos Ethernet de 10 Gb y hasta 32 canales PCI Express. Está diseñado para funcionar sin interfaz gráfica. No admite ninguna interfaz de vídeo o de audio, pero permite la gestión fuera de banda.

VIDEO OUTPUT

Las salidas de vídeo comunes para los módulos COM Express son LVDS para soporte directo de panel y hasta 3 DDI (Digital Display Interfaces). Cada uno de los DDI se puede cambiar a TMDS (para DVI o HDMI) o DisplayPort. Los próximos módulos Tipo 6 también permitirán un Displayport embebido. Esta interfaz eDP se multiplexará con el canal LVDS A. Los módulos de tipo 7 están diseñados para uso sin cabecera y no admiten salidas de vídeo directas

PERSONALIZACIÓN

COM Express® es un estándar libre de herencias. Las interfaces heredadas o las características personalizadas se generan en una placa base personalizada.

MÓDULOS COM EXPRESS MINI TIPO 10



Gigabit Ethernet
LPC
4x PCIe
HDA
LVDS 1x24 /eDP
DDI
2xSATA
8xUSB 2.0 / 2x USB 3.0
8x GPIO / SDIO
2x SER / CAN
SPI & I2C
Power

El COM Express Type 10 tiene un tamaño de 84mm x 55mm, dispone de un solo conector tipo COM Express y de agujeros de montaje.

NUEVAS INTERFACES

INTERFACES DISPLAY DIGITALES

Con el fin de dar soporte a la evolución de las tecnologías de interfaces para displays, el estándar COM Express incluyó las HDMI y DisplayPort. El HDMI proporciona una interfaz de audio y video que puede soportar señales de TV y PC, incluyendo video en HD, todo acompañado de un streaming de audio digital. DisplayPort, estandarizado por IVideo Electronics Standards Association, proporciona una interfaz libre entre un monitor y un PC. En contra de lo que ocurría con las interfaces de digitales para displays anteriores, DisplayPort es capaz de controlar tanto displays externos como paneles internos, aspecto que se ha vuelto muy importante en las actuales aplicaciones con COM Express

USB 3.0

El COM Express 1.0 se soportaba ocho interfaces USB 2.0 host, cada una de las cuales estaba compuesta por un par de señal diferencial y velocidades de hasta 480 Mbps. El USB 3.0 expande las capacidades del USB y añade la capacidad “SuperSpeed”, alcanzando tasas de transferencia de hasta 4.8 Gbps.

INTERFACES

Los módulos Tipo 10 tienen un único conector con dos filas de pines (220 en total). El emplazamiento del conector y los agujeros de montaje son transparentes con los demás formatos COM Express.

Types	Connector Rows	PCI Express Lanes	PEG/SDVO	PCI	IDE	SATA	LAN	USB2.0/USB3.0	Display Interfaces
Type 10	A-B	Up to 4	-/1	-	-	2	1	8/2	LVDS/EDP, 1xDD1

MÓDULOS COM EXPRESS MINI TIPO 10

Atom E3800 y Celeron (Bay Trail)

	CONGATEC conga-MA3	TQ TQMxE38M
Formfactor	COM Express tipo 10	COM Express tipo 10
CPU	Intel® Atom™ E3845 (4 x 1.91 GHz, 2MB L2 cache, 10 W)	E3845: 4x 1,91 GHz, 2 MB L2-Cache, 10W
	Intel® Atom™ E3827 (2 x 1.75 GHz, 1MB L2 cache, 8 W)	E3827: 2x 1,75 GHz, 1 MB L2-Cache, 8W
	Intel® Atom™ E3826 (2 x 1.46 GHz, 1MB L2 cache, 7 W)	E3826: 2x 1,46 GHz, 1 MB L2-Cache, 7W
	Intel® Atom™ E3815 (1 x 1.46 GHz, 512kB L2 cache, 5 W)	E3825: 2x 1,33 GHz, 1 MB L2-Cache, 6W
		E3805: 2x 1,33 GHz, 1 MB L2-Cache, 3W, without graphics
	Intel® Celeron® N2930 (4 x 1.86 GHz, 7,5 W)	E3815: 1x 1,46 GHz, 512 KB L2-Cache, 5W
DRAM	up to 8GB of DDR3L memory soldered onboard. Option for ECC memory (reference conga-MA3E)	2 GB, 4 GB, (8 GB) DDR3L RAM with ECC support by default, soldered on board.
Flash	4GB or 8GB eMMC	N/A
Ethernet	Intel® I210 Gigabit Ethernet controller	Intel® I210 Gigabit Ethernet controller
I/O Interfaces	4 x PCIe x1 lanes with 5 Gb/s	3xPCIe 3.0 (4 si no se usa Eth)
	2 x SATA 2.0 3Gb/s	2xSATA 2.0, soporta eSATA
	7 x USB 2.0	3xUSB2,0
	1 x USB 3.0	1xUSB 3,0
	LPC bus	LPC bus
	SPI	SPI
	I²C bus	I2C
		SDIO
		2xUART
		up to 8 GPIOs (optional)
Sound	High Definition Audio Interface	High Definition Audio Interface
Graphics	Intel® HD Graphics Gen 7 Full hardware acceleration for MPEG2 H.264 DirectX11 OCL 1.2 OGL 3.2 WMV9 and VC1	Intel® HD Graphics Gen 7 Full hardware acceleration for MPEG2 H.264 DirectX11 OCL 1.2 OGL 3.2 WMV9 and VC1
Board Controller	Multi Stage Watchdog, non-volatile User Data Storage, Manufacturing and Board information, Board Statistics, BIOS Setup, Data Backup, I²C bus , Power Loss Control	TQMx86 board-controller with Watchdog and TQ flexiCFG
TPM		Optional: SLB9660 TPM 1.2, alternatively SLB9665 TPM 2.0
Embedded BIOS	AMI Aptio UEFI	AMI Aptio UEFI
Operating Systems	Microsoft® Windows® 8	
	Microsoft® Windows® 7	
	Linux	
	Window Embedded Compact 7	
	Microsoft® Windows® embedded Standard	
Temperature	Operating: 0 to +60 °C commercial grade -40 to +85 °C industrial grade	Operating: 0 to +60 °C commercial grade -40 to +85 °C industrial grade
Video Interfaces	Displayport 1.1 up to 2560x1600 or HDMI 1.4a / DVI up to 1920x1200	2x Digital Display Interface (DDI) for eDP 1.3, DP 1.1a, DVI, HDMI 1.4a or LVDS (with external converter)
	Single LVDS with resolution up to 1920x1200@60Hz	



MÓDULOS COM EXPRESS MINI TIPO 10

Atom E3800 y Celeron (Bay Trail)



conga-MA3



TQMxE38M

MÓDULOS EQUIVALENTES (pregunta a tu comercial o en embebidos@matrix.es)		
Fabricante	Referencia	CPUs
AXIOMTEK	CEM846	Atom E3845, E3827, E3815
ADVANTECH	SOM7567	Atom E3845, E3825, E3815 y Celeron J1900, N2930

DISIPADORES	
CONGATEC	
conga-MA30/HSP-T	Standard heatspreader for COM Express Type 10 module conga-MA3. All standoffs are M2.5 thread.
conga-MA30/HSP-B	Standard heatspreader for COM Express Type 10 module conga-MA3. All standoffs are 2.7mm bore hole.
conga-MA30/CSP-T	Standard passive cooling solution for COM Express Type 10 module conga-MA3 with fins. All standoffs are M2.5mm thread.
conga-MA30/CSP-B	Standard passive cooling solution for COM Express Type 10 module conga-MA3 with fins. All standoffs are 2.7mm bore hole.
TQ	
TQMxE38M-HSP	Heatspreader for TQMxE38M according to the COM Express™ specification
TQMxE38M-HSP-LP	Heatspreader for TQMxE38M, low profile for very flat designs

MÓDULOS COM EXPRESS MINI TIPO 10

Atom E3900, Celeron y Pentium (Apollo Lake)

	CONGATEC conga-MA5	TQ TQMxE39M
Formfactor	COM Express tipo 10	COM Express tipo 10
CPU	Intel® Atom™ x7-E3950 (4 x 1.6 / 2.0 GHz, 2MB L2 cache, 12W) Intel® Atom™ x5-E3940 (4 x 1.6 / 1.8 GHz, L2 cache 2MB, 9W) Intel® Atom™ x5-E3930 (2 x 1.3 / 1.8 GHz, L2 cache 1MB, 6.5W) Intel® Pentium® N4200 (4 x 1.1 / 2.5 GHz, L2 cache 2MB, 6W) Intel® Celeron® N3350 (2 x 1.1 / 2.4 GHz, L2 cache 1MB, 6W) Intel® Celeron® N2930 (4 x 1.86 GHz, 2MB L2 cache, 7.5 W)	Intel® Atom™ x7-E3950 (4 x 1.6 / 2.0 GHz, 2MB L2 cache, 12W) Intel® Atom™ x5-E3940 (4 x 1.6 / 1.8 GHz, L2 cache 2MB, 9W) Intel® Atom™ x5-E3930 (2 x 1.3 / 1.8 GHz, L2 cache 1MB, 6.5W) Intel® Pentium® N4200 (4 x 1.1 / 2.5 GHz, L2 cache 2MB, 6W) Intel® Celeron® N3350 (2 x 1.1 / 2.4 GHz, L2 cache 1MB, 6W)
DRAM	Onboard DDR3L memory support for up to 8 GByte with 1333MT/s	4GB or 8GB DDR3L RAM onboard
Flash	up to 128GB eMMC	4GB to 64GB eMMC
Ethernet	Intel® I210 (Industrial) / I211 (Commercial) Gigabit Ethernet Controller	Intel® I210 (Industrial) / I211 (Commercial) Gigabit Ethernet Controller
I/O Interfaces	4 x PCIe Gen2 2 x USB 3.0 6 x USB 2.0 2 x SATA3 SDIO LPC bus SM-Bus I ² C bus 2 x UART	4 x PCIe Gen2 2 x USB 3.0 6 x USB 2.0 2 x SATA3, eSATA capable SDIO LPC Bus SMBus I ² C 2xUART SPI
Sound	1x Intel® HD Audio (HDA)	1x Intel® HD Audio (HDA)
Graphics	Intel® HD Graphics Gen 7 Full hardware acceleration for MPEG2 H.264 DirectX11 OCL 1.2 OGL 3.2 WMV9 and VC1	Intel® HD Graphics Gen 7 Full hardware acceleration for MPEG2 H.264 DirectX11 OCL 1.2 OGL 3.2 WMV9 and VC1
Board Controller	Multi Stage Watchdog, non-volatile User Data Storage, Manufacturing and Board information, Board Statistics, BIOS Setup, Data Backup, I ² C bus , Power Loss Control	TQMx86 board-controller with Watchdog and TQ flexiCFG, it allows IEEE1588 sync
TPM		Optional: SLB9660 TPM 1.2, alternatively SLB9665 TPM 2.0
Embedded BIOS	AMI Aptio UEFI	AMI Aptio UEFI
Operating Systems	Microsoft® Windows® 8 Microsoft® Windows® 7 Linux Window Embedded Compact 7 Microsoft® Windows® embedded Standard	
Temperature	Operating: 0 to +60°C commercial grade -40 to +85°C industrial grade	Operating: 0 to +60°C commercial grade -40 to +85°C industrial grade
Video Interfaces	Displayport 1.1 up to 2560x1600 or HDMI 1.4a / DVI up to 1920x1200 Single LVDS with resolution up to 1920x1200@60Hz	1x Digital Display Interface (DDI) for DP 1.2a, eDP 1.3, HDMI 1.4b 1x eDP1.4/ Single Channel LVDS



MÓDULOS COM EXPRESS MINI TIPO 10

Atom E3900, Celeron y Pentium (Apollo Lake)



conga-MA5



TQMxE39M

MÓDULOS EQUIVALENTES (pregunta a tu comercial o en embebidos@matrix.es)

Fabricante	Referencia	CPUs
AXIOMTEK	CEM311	Pentium N4200, Celeron N3350
ADVANTECH	SOM7568/69	Atom E3950, E3940, E3930 y Pentium N4200, Celeron N3350

DISIPADORES

CONGATEC	
conga- MA5/i-CSP-T	Passive cooling solution for COM Express Mini Type10 module conga-MA5 with lidded Intel Atom processor. All standoffs are M2.5mm thread.
conga- MA5/i-CSP-B	Passive cooling solution for COM Express Mini Type10 module conga-MA5 with lidded Intel Atom processor. All standoffs are with 2.7mm bore hole
conga- MA5/i-HSP-T	Standard heatspreader for COM Express Mini Type10 module conga-MA5 with lidded Intel Atom processor. All standoffs are M2.5mm thread.
conga- MA5/i-HSP-B	Standard heatspreader for COM Express Mini Type10 module conga-MA5 with lidded Intel Atom processor. All standoffs are with 2.7mm bore hole
conga- MA5/CSP-T	Passive cooling solution for COM Express Mini Type10 module conga-MA5 with open silicon Intel Pentium and Celeron processor. All standoffs are M2.5mm thread
conga- MA5/CSP-B	Passive cooling solution for COM Express Mini Type10 module conga-MA5 with open silicon Intel Pentium and Celeron processor. All standoffs are with 2.7mm bore hole.
conga- MA5/HSP-T	Standard heatspreader for COM Express Mini Type10 module conga-MA5 with open silicon Intel Pentium and Celeron processor. All standoffs are M2.5mm thread
conga- MA5/HSP-B	Standard heatspreader for COM Express Mini Type10 module conga-MA5 with open silicon Intel Pentium and Celeron processor. All standoffs are with 2.7mm bore hole
TQ	
TQMxE39M-HSP	Heatspreader for TQMxE39M according to the COM Express™ specification
TQMxE39M-HSP-LP	Heatspreader for TQMxE39M, low profile for very flat designs

MÓDULOS COM EXPRESS MINI TIPO 10

Accesorios



conga-LDVI/EP

ACCESORIOS COM EXPRESS TYPE 10	
CONGATEC	
conga-MEVAL	Evaluation carrier board for Type 10 COM Express modules
conga-LDVI/EP	LVDS to DVI converter board for digital flat panels with onboard EEPROM
COM-Express-carrierboard-Socket-5	Connector for COM-Express carrier boards height 5mm packing unit 4 pieces
COM-Express-carrierboard-Socket-8	Connector for COM-Express carrier boards height 8mm packing unit 4 pieces
TQ	
Evaluation platform MB-COME10-1	Mainboard for COM Express™ Minimodules, Type 10 Interfaces: DP, eDP/LVDS, 2x Gb Ethernet, 4x USB, 3x COM, audio, mini PCIe, mSATA, 2.5" SSD, SD card, riser extension with PCIe and USB, fan, debug 170 mm x 170 mm

MÓDULOS COM EXPRESS TIPO 6



Gigabit Ethernet	4x USB 3.0
LPC	
8x PCIe	
HDA	PEGx16
LVDS/eDP	
ExpressCard	
4xSATA	3xDDI
8x USB 2.0	
8xGPIO/SDIO	
2xSER/CAN	
SPI & I2C	Power
Power	

PIN OUT CONECTOR

El COM Express Tipo 6 surgió para dar cabida a las nuevas interfaces digitales a los factores de forma COM Express compacto y básico. Igual que el antiguo Tipo 2, define 2 conectores en la parte posterior del módulo, el conector A-B y el C-D. El pin out del conector A-B apenas sufre cambios respecto de versiones anteriores (Tipo 2). Simplemente, algunos pines que estaban reservados se dedican a la UART, ventilador (PWM), y señales para dormir al procesador. Los pines de la UART fueron añadidos para depuración. Al mismo tiempo, fue añadido un pin para indicar la presencia de un chip TPM opcional en el módulo.

En cambio, el conector C-D fue completamente redefinido, con la finalidad de hacer desaparecer señales obsoletas, como el PCI y el IDE, y dar cabida a nuevas señales digitales de alta velocidad como: hasta cuatro USB 3.0, hasta tres DDI, hasta dos líneas PCIe adicionales.

DIGITAL DISPLAY INTERFACE

Son la suma de distintos pares de líneas para portar datos gráficos. En el Tipo 6 se dispone de 3 DDI independientes: el primero puede ser usado como HDMI, Display Port o SDVO, dependiendo del conector de I/O que lleve, y la segunda y tercera DDI puede ser sólo TMDS o DisplayPort. En el caso del DisplayPort se puede sacar fácilmente del pin del módulo hasta la carrier board, en el caso del TMDS es necesario integrar un cambiador de nivel. Es, por tanto, decisión del diseñador de la carrier el usar una interfaz u otra.

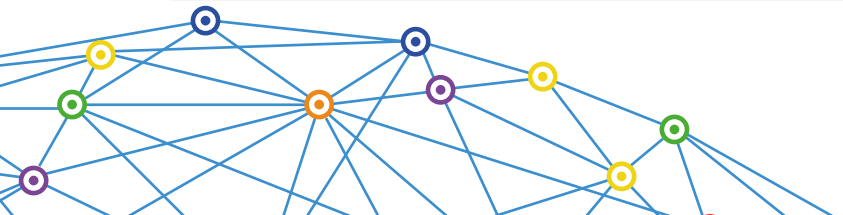
USB 3.0—SuperSpeed

Dos pares diferenciales llevan las señales USB 3.0, SuperSpeedTX y SuperSpeedRX añadidas a las ya existentes en USB 2.0 Data+ y Data-. Y un pin GND entre las líneas SuperSpeed, permite una mayor integridad de la señal. Además de las tasas de transferencia de datos mucho mayores que los del USB 2.0, el USB 3.0 es capaz de sacar hasta 900mA, de la línea de 5V. Lo que soluciona los problemas de alimentación de muchos dispositivos conectados a la línea USB, como podían ser discos duros externos. El COM Express Tipo 6 permite que cuatro de las señales USB 2.0 se conviertan en USB 3.0. Pero el máximo número de interfaces USB, en el pin out de los módulos Tipo 6 siguen siendo 8.

MÓDULOS COM EXPRESS MINI TIPO 6 BÁSICO

Intel Core de 6ª y 7ª generación

	CONGATEC	TQ
	conga-TS175	TQMx70EB
Formfactor	COM Express Type 6 Basic	COM Express Type 6 Basic
CPU	Intel® Core™ i7-7820EQ (4 x 3.0 / 3.7 GHz, 8MB Cache, 45W)	Xeon E3-1505L v6 (4x 2.2 / 3.0 GHz, 8 MB, 25 W)
	Intel® Core™ i5-7440EQ (4 x 2.9 / 3.6 GHz, 6MB Cache, 45W)	Intel® Core™ i7-7820EQ (4 x 3.0 / 3.7 GHz, 8MB Cache, 45W)
	Intel® Core™ i5-7442EQ (4 x 2.1 / 2.9 GHz, 6MB Cache, 25W)	Intel® Core™ i5-7440EQ (4 x 2.9 / 3.6 GHz, 6MB Cache, 45W)
	Intel® Core™ i3-7100E (2 x 2.9 GHz, 3MB Cache, 35W)	Intel® Core™ i5-7442EQ (4 x 2.1 / 2.9 GHz, 6MB Cache, 25W)
	Intel® Core™ i3-7102E (2 x 2.1 GHz, 3MB Cache, 25W)	Intel® Core™ i3-7100E (2 x 2.9 GHz, 3MB Cache, 35W)
	Intel® Xeon® E3-1505M V6 (4 x 3.0 / 4.0 GHz, 8MB Cache, 45W)	Intel® Core™ i3-7102E (2 x 2.1 GHz, 3MB Cache, 25W)
	Intel® Xeon® E3-1505L V6 (4 x 2.2 / 3.0 GHz, 8MB Cache, 25W)	
DRAM	2 Sockets, SO-DIMM DDR4 up to 2400 MT/s and 32GByte dual channel, optionally ECC support	DDR4-2133: up to 32 GB, w. ECC option, 2 SO-DIMMs
Chipset	Mobile Intel® 100 Series Chipset	Mobile Intel® 100 Series Chipset
Ethernet	Intel® 219-LM GbE LAN Controller with AMT 11.6 support	Intel® 219-LM GbE LAN Controller with AMT 11.6 support
I/O Interfaces	8 x PCI Express GEN 3.0 lanes	8 x PCI Express GEN 3.0 lanes
	4 x Serial ATA Gen 3	4 x Serial ATA Gen 3
	4 x USB 3.0 (XHCI)	4 x USB 3.0 (XHCI)
	8 x USB 2.0 (XHCI)	8 x USB 2.0 (XHCI)
	1 x PEG x16 Gen 3	1 x PEG x16 Gen 3
	LPC bus	LPC bus
	I²C bus (fast mode, 400 kHz, multi-master)	I²C bus (fast mode, 400 kHz, multi-master)
	2 x UART	2 x UART
	8xGPIO	
	SMBus	
Sound	Digital High Definition Audio Interface with support for multiple audio codecs	1x Intel® HD audio (HDA)
	Intel® Gen9 HD Graphics Engine	Intel® Gen9 HD Graphics Engine
Graphics	OpenCL 2.1, OpenGL 5.0 and DirectX12 (for Windows 10) support up to three independent displays: HDMI 1.4a / DisplayPort 1.2 / eDP 1.3 High performance hardware MPEG-2 decoding WMV9 (VC-1) and H.265 (HEVC) support Blu-ray support @ 40 MBit/s HEVC, VP9, VDENC encoding	OpenCL 2.1, OpenGL 5.0 and DirectX12 (for Windows 10) support up to three independent displays: HDMI 1.4a/DisplayPort 1.2/eDP 1.3 High performance hardware MPEG-2 decoding WMV9 (VC-1) H.265 (HEVC) support Blu-ray support @ 40 MBit/s HEVC, VP9,VDENC encoding
Board Controller	Multi Stage Watchdog non-volatile User Data Storage Manufacturing and Board Information Board Statistics LVDS backlight control I²C bus (fast mode, 400 kHz, multi-master) Power Loss Control	TQMx86 board controller with watchdog and flexiCFG
Embedded BIOS	AMI Aptio® 2.X (UEFI) BIOS 8/16 MByte serial SPI firmware flash	AMI uEFI with Intel® Active Management Technology 9.0 supported
TPM	Optional	TPM (SLB9660 TPM 1.2, alternatively SLB9665 TPM 2.0)
Operating Systems	Microsoft® Windows 10 (64bit only) Microsoft® Windows 10 IoT Enterprise (64bit only) Linux	TBD
Temperature	Operating: 0 to +60°C commercial grade	Operating: 0 to +60°C commercial grade
Video Interfaces	3x TMDS (HDMI) / DisplayPort 1.2 with support for Multi-Stream Transport (MST) resolutions up to 4k VGA (optional)	
	Dual channel LVDS transmitter, Supports flat panels 2x24 Bit interface VESA and openLDI colour mappings resolutions up to 1920x1200 Automatic Panel Detection via EDID/EPI	3x Digital Display Interface/DP++ with up to 4K @ 60Hz LVDS Interface (18/24 bit, Single/Dual Channel) (optional eDP 1.4 4 lanes instead of LVDS) Intel® Quick Sync Video, Wireless Display
Size	125x95mm	125x95mm



MÓDULOS COM EXPRESS MINI TIPO 6 BÁSICO

Intel Core de 6ª y 7ª generación

	CONGATEC conga-TS170	TQ TQMx60EB
Formfactor	COM Express Type 6 Basic	COM Express Type 6 Basic
CPU	Intel® Core™ i7-6820EQ (4 x 2.8 / 3.5 GHz, 8MB L2 cache, 45 W)	Intel® Core™ i7-6820EQ (4 x 2.8 / 3.5 GHz, 8MB L2 cache, 45 W)
	Intel® Core™ i7-6822EQ (4 x 2.0 / 2.8 GHz, 8MB L2 cache, 25 W)	Intel® Core™ i7-6822EQ (4 x 2.0 / 2.8 GHz, 8MB L2 cache, 25 W)
	Intel® Core™ i5-6440EQ (4 x 2.7 / 3.4 GHz, 6MB L2 cache, 45 W)	Intel® Core™ i5-6440EQ (4 x 2.7 / 3.4 GHz, 6MB L2 cache, 45 W)
	Intel® Core™ i5-6442EQ (4 x 1.9 / 2.7 GHz, 6MB L2 cache, 25 W)	Intel® Core™ i5-6442EQ (4 x 1.9 / 2.7 GHz, 6MB L2 cache, 25 W)
	Intel® Core™ i3-6100E (2 x 2.7 GHz, 3MB L2 cache, 35 W)	
	Intel® Core™ i3-6102E (2 x 1.9 GHz, 3MB L2 cache, 25 W)	
	Intel® Xeon™ E3-1505M V5 (4 x 2.8 / 3.7 GHz, 8MB L2 cache, 45 W)	Intel® Xeon™ E3-1505M V5 (4 x 2.8 / 3.7 GHz, 8MB L2 cache, 45 W)
	Intel® Xeon™ E3-1505L V5 (4 x 2.0 / 2.8 GHz, 8MB L2 cache, 25 W)	Intel® Xeon™ E3-1505L V5 (4 x 2.0 / 2.8 GHz, 8MB L2 cache, 25 W)
DRAM	2 Sockets, SO-DIMM DDR4 32GByte dual channel	DDR4-2133: up to 32 GB, w.ECC Option, 2 SO-DIMMs
Chipset	Mobile Intel® 100 Series Chipset	Integrated in SoC
Ethernet	Intel® i219-LM GbE LAN Controller with AMT 11 support	1x Gigabit Ethernet (Intel® i219-LM)
I/O Interfaces	1 x PEG x16 Gen 3	1 x PCIe x16 v3.0
	8 x PCI Express GEN 3.0 lanes	8 x PCIe gen 3
	4 x SATA III	4 x SATA III
	4 x USB 3.0 (XHCI)	4 x USB 3.0 (XHCI)
	8 x USB 2.0	8 x USB 2.0
	LPC bus	LPC bus
	I²C bus	I²C bus
	2 x UART	2 x UART
	SPI	SPI
		SM bus
Sound	Digital High Definition Audio Interface with support for multiple audio codecs	1x Intel® HD Audio (HDA)
Graphics	Intel® Gen9 HD Graphics Engine: with OpenCL 2.0, OpenGL 4.3 and DirectX12 (Windows 10) support up to three independent displays: HDMI 1.4a DisplayPort 1.2 eDP 1.3 VGA (optional)	Intel® HD Graphics Gen 8 Full hardware acceleration for MPEG2 H.264 DirectX11.1 Direct X12 for Windows 10 OCL 1.2 OGL 4.2 WMV9 VC-1
Board Controller	Multi Stage Watchdog non-volatile User Data Storage Manufacturing and Board Information Board Statistics LVDS backlight control I²C bus (fast mode, 400 kHz, multi-master) Power Loss Control	TQMx86 board controller with watchdog and TQ flexiCFG
Embedded BIOS	AMI Aptio® 2.X (UEFI) BIOS 8/16 MByte serial SPI firmware flash	
TPM	Optional	SLB9660 TPM 1.2, alternatively SLB9665 TPM 2.0
Operating Systems	Microsoft® Windows® 10	
	Microsoft® Windows® 7	
	Linux	
	Microsoft® Windows® embedded Standard	
	Microsoft® Windows® 8.1	
Temperature	Operating: 0 to +60 °C commercial grade	Operating: 0 to +60 °C commercial grade
Video Interfaces	2 x TMDS (HDMI) / DisplayPort 1.2a with support for Multi-Stream Transport (MST), resolutions up to 4k	3x Digital Display Interface / DP++ with up to 4K@60Hz
	1 x eDP 1.3	LVDS Interface (18/24 bit, Single/Dual Channel), up to 4K
	1 x LVDS 2x24	(optional eDP 1.3 instead of LVDS)
	1 x VGA (optional)	Intel® Quick Sync Video + Wireless Display

MÓDULOS COM EXPRESS MINI TIPO 6 BÁSICO

Intel Core de 6ª y 7ª generación



conga-TS175



TQMx60EB

MÓDULOS EQUIVALENTES Intel Core 7ª generación (pregunta a tu comercial o en embebidos@matrix.es)		
Fabricante	Referencia	CPUs
AXIOMTEK	CEM511	i7-7600U, i5-7300U, i3-7100U
ADVANTECH	SOM5898	i7-7820eq, i5-7440eq, i5-7442eq, i3-7100e, i3-7102e, E3-1505MV6, E3-1505LV6

MÓDULOS EQUIVALENTES Intel Core 6ª generación (pregunta a tu comercial o en embebidos@matrix.es)		
Fabricante	Referencia	CPUs
AXIOMTEK	CEM500	E3-1505 v5, i7-6820EQ, i7-6822EQ, i5-6440EQ, i3-6100E
ADVANTECH	SOM5897	i7-6820EQ, i7-6822EQ, i5-6440EQ, i3-6100E, G3900E, E3-1505M V5, E3-1505L V5, E3-1515M V5

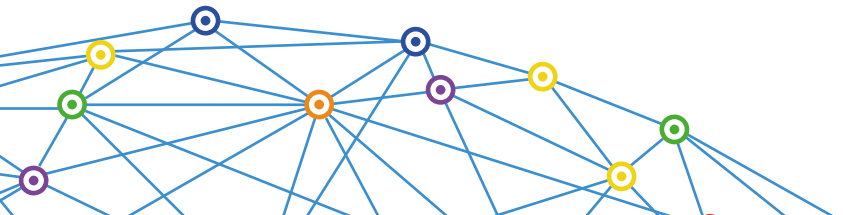
DISIPADORES	
CONGATEC	
conga-TS170/HSP-HP-B	Standard heatspreader for high performance COM Express modules conga-TS170/TS175 with integrated heat pipes. All standoffs are with 2.7mm bore hole
conga-TS170/HSP-HP-T	Standard heatspreader for high performance COM Express modules conga-TS170/TS175 with integrated heat pipes. All standoffs are M2.5mm thread
conga-TS170/CSP-HP-B	Standard passive cooling solution for high performance COM Express modules conga-TS170/TS175 with integrated heat pipes, 15mm silver fins and 21mm overall heat sink height. All standoffs are with 2.7mm bore hole
conga-TS170/CSP-HP-T	Standard passive cooling solution for high performance COM Express modules conga-TS170/TS175 with integrated heat pipes, 15mm silver fins and 21mm overall heat sink height. All standoffs are M2.5mm thread.
conga-TS170/CSA-HP-B	Standard active cooling solution for high performance COM Express modules conga-TS170/TS175 with integrated heat pipes, 15mm silver fins, 21mm overall heat sink height and integrated 12V fan. All standoffs are with 2.7mm bore hole.
conga-TS170/CSA-HP-T	Standard active cooling solution for high performance COM Express modules conga-TS170/TS175 with integrated heat pipes, 15mm silver fins, 21mm overall heat sink height and integrated 12V fan. All standoffs are M2.5mm thread.
TQ	
TQMx60EB-HSP	Heatspreader for TQMx60EB according to the COM Express® specification
TQMx70EB-HSP	Heatspreader for TQMx70EB according to the COM Express® specification

MÓDULOS COM EXPRESS MINI TIPO 6 COMPACT

Intel Core de 6ª y 7ª generación

	CONGATEC conga-TC175
Formfactor	COM Express Type 6 Compact
CPU	Intel® Core™ i7-7600U (2 x 2.8 / 3.9 GHz, 4MB Cache, 15W) Intel® Core™ i5-7300U (2 x 2.6 / 3.5 GHz, 3MB Cache, 15W) Intel® Core™ i3-7100U (2 x 2.4 GHz, 3MB Cache, 15W) Intel® Celeron® 3965U (2 x 2.2 GHz, 2MB Cache, 15W)
DRAM	2 Sockets, SO-DIMM DDR4 up to 2133 MT/s and 32 GByte dual channel
Flash	N/A
Chipset	Integrated PCH-LP
Ethernet	Intel® i219-LM GbE LAN Controller with AMT 11.6 support
I/O Interfaces	8 x PCI Express GEN 3.0 lanes 3 x Serial ATA® Gen 3 (can be configured as RAID) 4 x USB 3.0 (XHCI) 8 x USB 2.0 (EHCI) LPC bus (no DMA) I²C bus (fast mode, 400 kHz, multi-master) 2 x UART
Sound	Digital High Definition Audio Interface with support for multiple audio codecs
Graphics	Intel® Gen9 HD Graphics Engine
Board Controller	OpenCL 2.1, OpenGL 5.0 and DirectX12 (for Windows 10) support up to three independent displays: HDMI 1.4a / DisplayPort 1.2 / eDP 1.3 High performance hardware MPEG-2 decoding WMV9 (VC-1) and H.265 (HEVC) support Blu-ray support @ 40 MBit/s HEVC, VP9 and VDENC encoding
Embedded BIOS	AMI Aptio® 2.X (UEFI) BIOS 8/16 MByte serial SPI firmware flash
TPM	Optional
Operating Systems	Microsoft® Windows 10 (64bit only) Fedora 24 Ubuntu SuSe Red Hat Enterprise Yocto Project v2.2 Chromium 2 Wind River VxWorks
Temperature	Operating: 0 to +60°C commercial grade
Video Interfaces	2x TMDS (HDMI) / DisplayPort 1.2 with support for Multi-Stream Transport (MST) resolutions up to 4k VGA (optional) Dual channel LVDS transmitter, Supports flat panels 2x24 Bit interface VESA and openLDI colour mappings resolutions up to 1920x1200 Automatic Panel Detection via EDID/EPI
Size	95x95mm

	CONGATEC conga-TC170
Formfactor	COM Express Type 6 Compact
CPU	Intel® Core™ i7-6600U (2 x 2.6 / 3.4 GHz, 4M Cache, 15W) Intel® Core™ i5-6300U (2 x 2.4 / 3.0 GHz, 3M Cache, 15W) Intel® Core™ i3-6100U (2 x 2.3 GHz, 3M Cache, 15W) Intel® Celeron® 3955U (2 x 2.0 GHz, 2 MB, 15W)
DRAM	2 Sockets, SO-DIMM DDR4 32GByte dual channel
Flash	N/A
Chipset	Integrated PCH-LP
Ethernet	Intel® i219-LM GbE LAN Controller
I/O Interfaces	6 x PCI Express GEN 3.0 lanes 3 x Serial ATA Gen 3 4 x USB 3.0 (XHCI) 8 x USB 2.0 (EHCI) 1 x LPC bus 1 x I²C bus 2 x UART
Sound	High Definition Audio Interface
Graphics	Intel® Gen9 HD Graphics Engine: with OpenCL 2.0, OpenGL 4.3 and DirectX12 (Windows 10) support up to three independent displays: HDMI 1.4a DisplayPort 1.2 eDP 1.3 VGA (optional)
Board Controller	Multi Stage Watchdog non-volatile User Data Storage Manufacturing and Board Information Board Statistics LVDS backlight control I²C bus (fast mode, 400 kHz, multi-master) Power Loss Control
Embedded BIOS	AMI Aptio® 2.X (UEFI) BIOS 8/16 MByte serial SPI firmware flash
TPM	Optional
Operating Systems	Microsoft® Windows® 10 Microsoft® Windows® 7 Linux Microsoft® Windows® embedded Standard Microsoft® Windows® 8.1
Temperature	Operating: 0 to +60°C commercial grade
Video Interfaces	2 x TMDS (HDMI) / DisplayPort 1.2a with support for Multi-Stream Transport (MST), resolutions up to 4k 1 x eDP 1.3 1 x LVDS 2x24 1 x VGA (optional)
Size	95x95mm



MÓDULOS COM EXPRESS MINI TIPO 6 COMPACT

Intel Core de 6ª y 7ª generación



conga-TC175



conga-TC170

MÓDULOS EQUIVALENTES Intel Core 6ª generación (pregunta a tu comercial o en embebidos@matrix.es)		
Fabricante	Referencia	CPUs
ADVANTECH	SOM6898	i7-7600u, i57300u, i3-7100u, Celeron 3965U

MÓDULOS EQUIVALENTES Intel Core 7ª generación (pregunta a tu comercial o en embebidos@matrix.es)		
Fabricante	Referencia	CPUs
ADVANTECH	SOM6897	i7-6600U, i5-6300U, i3-6100U, Celeron 3955U

DISIPADORES	
CONGATEC	
conga-TC87/ HSP-B*	Standard heatspreader for COM Express modules conga-TC87, TC97, TC170 and TC175. All standoffs are with 2.7mm bore hole.
conga-TC87/ HSP-T*	Standard heatspreader for COM Express modules conga-TC87, TC97, TC170 and TC175. All standoffs are M 2.5 threaded.
conga-TC87/ CSP-B*	Standard passive cooling solution for COM Express modules conga-TC87, TC97, TC170 and TC175. All standoffs are with 2.7mm bore hole
conga-TC87/ CSP-T*	Standard passive cooling solution for COM Express modules conga-TC87, TC97, TC170 and TC175. All standoffs are M 2.5 threaded
conga-TC87/ CSA-B*	Standard active cooling solution for COM Express Compact modules conga-TC87, TC97, TC170 and TC175 with 70mm radial FAN. All stand-offs are with 2.7mm bore hole
conga-TC87/ CSA-T*	Standard active cooling solution for COM Express module conga-TC87, TC97, TC170 and TC175 with 70mm radial FAN. All stand-offs are M2.5 threaded.

MÓDULOS COM EXPRESS MINI TIPO 6 BASICO

AMD R-Series 2ª (Excavator)



MÓDULOS EQUIVALENTES (pregunta a tu comercial o en embebidos@matrix.es)		
Fabricante	Referencia	CPUs
ADVANTECH	SOM5893	RX-427BB, RX-425BB, RX225FB

DISIPADORES	
CONGATEC	
conga-TR3/HSP-HP-B	Standard heatspreader for high performance COM Express module conga-TR3 with integrated heat pipes. All standoffs are with 2.7mm bore hole.
conga-TR3/HSP-HP-T	Standard heatspreader for high performance COM Express module conga-TR3 with integrated heat pipes. All standoffs are M2.5mm thread.
conga-TR3/CSP-HP-B	Standard passive cooling solution for high performance COM Express module conga-TR3 with integrated heat pipes, 15mm fins and 20mm overall heat sink height. All standoffs are with 2.7mm bore hole.
conga-TR3/CSP-HP-T	Standard passive cooling solution for high performance COM Express module conga-TR3 with integrated heat pipes, 15mm fins and 20mm overall heat sink height. All standoffs are M2.5mm thread.
conga-TR3/CSA-HP-B	Standard active cooling solution for high performance COM Express module conga-TR3 with integrated heat pipes, 15mm fins, 20mm overall heat sink height and integrated 12V fan. All standoffs are with 2.7mm bore hole.
conga-TR3/CSA-HP-T	Standard active cooling solution for high performance COM Express module conga-TR3 with integrated heat pipes, 15mm fins, 20mm overall heat sink height and integrated 12V fan. All standoffs are M2.5mm thread.

	CONGATEC
	conga-TR3
Formfactor	COM Express Type 6 Basic
CPU	AMD RX-421BD (2.1 - 3.4 GHz, , 12-35W) AMD RX-418GD (1.8 - 3.2 GHz, , 12-35W) AMD RX-216GD (1.6 - 3.0 GHz, , 12-15W)
DRAM	2 Sockets, SO-DIMM DDR4 up to 32 GByte with ECC
Flash	N/A
Chipset	Integrated in SoC
Ethernet	Gigabit Ethernet
I/O Interfaces	3 x PCIe 2.0 1 x PEG 3.0 x8 2 x SATA III 4 x USB 3.0 4 x USB 2.0 1 x I²C bus 1 x SD 1 x LPC bus SPI SM-Bus 2 x UART
Sound	High Definition Audio Interface
Graphics	Integrated AMD Radeon™ Graphics supports DirectX 12 OpenGL 4.4 and OpenCL™ 2.0 up to 3 Simultaneous Displays Unified Video Decoder 6 (H.265, H.264, MVC, MPEG4, MPEG2, VC-1, WMV and MJPEG) Video Compression Engine 3.1 (dual, H.264, SVC)
Board Controller	Multi Stage Watchdog non-volatile User Data Storage Manufacturing and Board Information Board Statistics LVDS backlight control I²C bus (fast mode, 400 kHz, multi-master) Power Loss Control
Embedded BIOS	AMI AptioV® UEFI 2.x firmware. 8 MByte serial SPI firmware flash
TPM	Optional
Operating Systems	Microsoft® Windows® 10 Microsoft® Windows® 7 Microsoft® Windows® 8.1 Linux Microsoft Windows 8 embedded
Temperature	Operating: 0 to +60°C commercial grade
Video Interfaces	3 x TMDS (HDMI) / DisplayPort 1.2a with support for Multi-Stream Transport (MST), resolutions up to 4k

MÓDULOS COM EXPRESS MINI TIPO 6 COMPACT

Intel Atom E3900, Celeron y Pentium (Apollo Lake)

	CONGATEC conga-TCA5	TQ TQMxE39C1
Formfactor	COM Express Type 6 Compact	COM Express Type 6 Compact
CPU	Intel® Atom™ x7-E3950 (4 x 1.6 / 2.0 GHz, 2MB L2 cache, 12W) Intel® Atom™ x5-E3940 (4 x 1.6 / 1.8 GHz, L2 cache 2MB, 9W) Intel® Atom™ x5-E3930 (2 x 1.3 / 1.8 GHz, L2 cache 1MB, 6.5W) Intel® Celeron® N3350 (2 x 1.1 / 2.4 GHz, L2 cache 1MB, 6W) Intel® Pentium® N4200 (4 x 1.1 / 2.5 GHz, L2 cache 2MB, 6W)	Intel® Atom™ x7-E3950 (4 x 1.6 / 2.0 GHz, 2MB L2 cache, 12W) Intel® Atom™ x5-E3940 (4 x 1.6 / 1.8 GHz, L2 cache 2MB, 9W) Intel® Atom™ x5-E3930 (2 x 1.3 / 1.8 GHz, L2 cache 1MB, 6.5W)
DRAM	SO-DIMM sockets for DDR3L memory modules up to 8 GByte with 1867 MT/s Dual channel memory interface for increased graphics performance	DDR3L: 4/8 GB ECC, Dual Channel, ECC
Flash	optional up to 64GB eMMC	4GB to 64GB eMMC
Chipset	Integrated in SoC	Integrated in SoC
Ethernet	Intel I210 (Industrial) /I211 (Commercial) Gigabit Ethernet Controller with SDP support	Intel I210 (Industrial) /I211 (Commercial) Gigabit Ethernet Controller with SDP support
I/O Interfaces	5 x PCIe x1 4 x USB 3.0 (XHCI) 8 x USB 2.0 (EHCI) 2 x SATA III LPC bus SPI I ² C bus SDIO UART 2 x MIPI-CSI (optional)	4xPCIe 2.0 3xUSB 3.0 5x USB 2.0 2 x SATA III LPC bus SPI I ² C bus SDIO 2xUART
Sound	Digital High Definition Audio Interface	Digital High Definition Audio Interface
Graphics	Intel® HD Graphics Gen 9 PAVP 2.0 H.265/HEVC VP9 OpenCL 2.0 OpenGL 4.3 OpenGL ES 3.0 DirectX12 HDCP1.4	Intel® HD Graphics Gen 9 PAVP 2.0 H.265/HEVC VP9 OpenCL 2.0 OpenGL 4.3 OpenGL ES 3.0 DirectX12 HDCP1.4
Board Controller	Multi Stage Watchdog non-volatile User Data Storage Manufacturing and Board Information Board Statistics LVDS backlight control I ² C bus (fast mode, 400 kHz, multi-master) Power Loss Control	TQMx86 board controller with watchdog and flexiCFG
Embedded BIOS	OEM Logo OEM CMOS Defaults LCD Control Display Auto Detection Backlight Control Flash Update based on AMI Aptio UEFI	uEFI BIOS programming and to adapt / configure setup default values (including multi config), boot logo,...
TPM	Optional	Optional
Operating Systems	Microsoft® Windows® 10 Linux	Microsoft® Windows® 10 Linux
Temperature	Operating: 0 to +60°C commercial grade or -40 to +85°C industrial Dual channel LVDS transmitter support for flat panels with 2x24 bit data mapping up to a resolution of 1920x1200@60Hz	Operating: -40 to +85°C industrial 2x Digital Display Interface (DDI) for DP 1.2a, HDMI 1.4b 1x eDP1.4/ Dual Channel LVDS
Video Interfaces	Up to 2x DisplayPort 1.2a or 2x HDMI 1.4b (max. 3840x2160 @ 30Hz) 1x eDP 1.3 (optional)	



MÓDULOS COM EXPRESS MINI TIPO 6 COMPACT

Intel Atom E3900, Celeron y Pentium (Apollo Lake)



conga-TCA5



TQMxE39C1

MÓDULOS EQUIVALENTES (pregunta a tu comercial o en embebidos@matrix.es)		
Fabricante	Referencia	CPUs
AXIOMTEK	CEM313	Pentium N4200 & Celeron N3350
ADVANTECH	SOM6869	Atom E39510, E3940, E3930, Pentium N4200, Celeron N3350

DISIPADORES	
CONGATEC	
conga-TCA5/i-CSP-T	Passive cooling solution for COM Express Compact module conga-TCA5 with lidded Intel Atom processor. All standoffs are M2.5mm thread.
conga-TCA5/i-CSP-B	Passive cooling solution for COM Express Compact module conga-TCA5 with lidded Intel Atom processor. All standoffs are with 2.7mm bore hole
conga-TCA5/i-HSP-T	Standard heatspreader for COM Express Compact module conga-TCA5 with lidded Intel Atom processor. All standoffs are M2.5mm thread
conga-TCA5/i-HSP-B	Standard heatspreader for COM Express Compact module conga-TCA5 with lidded Intel Atom processor. All standoffs are with 2.7mm bore hole.
conga-TCA5/CSP-T	Passive cooling solution for COM Express Compact module conga-TCA5 with open silicon Intel Pentium and Celeron processor. All standoffs are M2.5mm thread
conga-TCA5/CSP-B	Passive cooling solution for COM Express Compact module conga-TCA5 with open silicon Intel Pentium and Celeron processor. All standoffs are with 2.7mm bore hole.
conga-TCA5/HSP-T	Standard heatspreader for COM Express Compact module conga-TCA5 with open silicon Intel Pentium and Celeron processor. All standoffs are M2.5mm thread.
conga-TCA5/HSP-B	Standard heatspreader for COM Express Compact module conga-TCA5 with open silicon Intel Pentium and Celeron processor. All standoffs are with 2.7mm bore hole.
TQ	
TQMxE39C1-HSP	Heatspreader for TQMxE39C1 according to the COM Express™ specification

MÓDULOS COM EXPRESS MINI TIPO 6 COMPACT

AMD G-Series 2ª Generación



DISIPADORES	
CONGATEC	
conga-TCG/HSP-B	Standard heatspreader for COM Express module conga-TCG. All standoffs are 2.7mm bore hole
conga-TCG/HSP-T	Standard heatspreader for COM Express module conga-TCG. All standoffs are M2.5 thread.
conga-TCG/CSP-B	Standard passive cooling solution for COM Express module conga-TCG with 20mm overall heat sink height. All standoffs are 2.7mm bore hole.
conga-TCG/CSP-T	Standard passive cooling solution for COM Express module conga-TCG with 20mm overall heat sink height. All standoffs are M2.5mm thread.

CONGATEC	
conga-TCG	
Formfactor	COM Express Type 6 Compact
CPU	AMD Embedded GX-420CA (4 x 2.0 GHz, L2 cache 2MB, 25 W) AMD Embedded GX-415GA (4 x 1.5 GHz, L2 cache 2MB, 15 W) AMD Embedded GX-217GA (2 x 1.65 GHz, L2 cache 1MB, 15 W) AMD Embedded GX-210HA (2 x 1.0 GHz, L2 cache 1MB, 9 W) AMD Embedded GX-411GA (4 x 1.0 GHz, L2 cache 2MB, 15 W) AMD Embedded GX-209HA (2 x 1.0GHz, L2 cache 1MB, 9W) AMD Embedded GX-424CC (4 x 2.4 GHz, L2 cache 2MB, 25 W) AMD Embedded GX-412HC (4 x 1.2 GHz, L2 cache 2MB, 7 W) AMD Embedded GX-212JC (2 x 1.2 GHz, L2 cache 1 MB, 6 W) AMD Embedded GX-222GC (2 x 2.2 GHz, L2 cache 2MB, 15 W)
DRAM	max. 8GByte DDR3L-1600 MHz onboard memory with ECC protection
Flash	N/A
Chipset	Integrated in APU (single-chip)
Ethernet	Gigabit Ethernet
I/O Interfaces	4 x PCIe 2.0 2 x USB 3.0 8 x USB 2.0 LPC bus I ² C bus SPI SD SM-Bus 2 x SATA
Sound	High Definition Audio Interface
Graphics	HD 8000E
Board Controller	Multi Stage Watchdog non-volatile User Data Storage Manufacturing and Board Information Board Statistics LVDS backlight control I ² C bus (fast mode, 400 kHz, multi-master) Power Loss Control
Embedded BIOS	AMI Aptio® 2.X (UEFI) BIOS 8/16 MByte serial SPI firmware flash
TPM	Optional
Operating Systems	Microsoft® Windows® 8 Microsoft® Windows® 7 Linux Microsoft® Windows® embedded Standard
Temperature	Operating: -40°C to +85°C
Video Interfaces	1xHDMI, VGA, LVDS, 1xDysplayPort

MÓDULOS COM EXPRESS MINI TIPO 6

Accesorios



conga-LDVI/EPI

ACCESORIOS COM EXPRESS TYPE 6	
CONGATEC	
conga-TEVAL	Evaluation carrier board for Type 6 COM-Express-modules
conga-LDVI/EPI	LVDS to DVI converter board for digital flat panels with onboard EEPROM
COMe-carrier-board-Socket-5	Connector for COM-Express carrier boards, height 5mm, packing unit 4 pieces
COMe-carrier-board-Socket-8	Connector for COM-Express carrier boards, height 8mm, packing unit 4 pieces
TQ	
Evaluation platform MB-COME6-1	Mainboard for COM Express™ Compact/Basic, Type 6 Interfaces: 2x DP++, eDP/LVDS, 2x Gb ethernet, 2x USB 3.0, 3x USB 2.0, 3x COM, audio, mini PCIe, mSATA, 2,5" SSD, CFast, riser extension with 2x PCIe and USB, fan, debug 170 mm x 170 mm

MÓDULOS COM EXPRESS TIPO 7



Gigabit Ethernet	4x USB 3.0
LPC	
32x PCIE	
2xSATA	4x10GBaseKR
4xUSB 2.0	
8xGPIO/SDIO	
2xSER/CAN	
SPI & I2C	
Power	

La nueva revisión 3.0 del estándar más exitoso de COMs (Computer-On-Modules) ha añadido un nuevo tipo de pin-out para extender el alcance del COM Express a aplicaciones tipo Server.

El estándar COM Express surgió en 2005, con revisiones en 2010 y 2012. La última versión, la revisión 3.0, define 4 tamaños distintos (Mini, Compacto, Básico y Extendido) y tres pin-outs (Tipo 10, Tipo 6 y Tipo 7).

El nuevo Tipo 7 no es un reemplazo del bien conocido e implantado Tipo 6. Si no que incorpora todas las interfaces de audio y video para soportar hasta cuatro 10GB Ethernet y un total de 32 líneas PCIe, con el fin e soportar aplicaciones de micro servidor mejorado, así como otro tipo de aplicaciones server que, obligadamente, necesitan bajo consumo pero también altas prestaciones a nivel de procesado y altas tasas de transferencia en las comunicaciones.

COM Express Pinouts

Type	Rows	PCIe	SATA	LAN 1G/10G	USB 2.0/3.0	Display
10	AB	4	2	1/-	8/2	LVDS/eDP,DDI
6	AB/CD	24	4	1/-	8/4	VGA,LVDS,PEG,3x DDI
7	AB/CD	32	2	1/4	4/4	

Combinaciones reales de pinouts y tamaños

	Mini 84x55mm2	Compact 95x125mm2	Basic 95x125mm2	Extended 110x155mm2
Type 10	++	-	-	-
Type 6	-	++	++	-
Type 7	-	-	++	Possible

MÓDULOS COM EXPRESS MINI TIPO 7 BÁSICO

Intel Xeon D-15XX



	CONGATEC conga-B7XD		
Formfactor	COM Express Type 7		
CPU	Intel® Xeon® D1577 (16 x 1.3 / 2.1 GHz, 24MB cache, 45 W)	Board Controller	Multi Stage Watchdog, non-volatile User Data Storage, Manufacturing and Board information, Board Statistics, BIOS Setup, Data Backup, I ² C bus , Power Loss Control
	Intel® Xeon® D1548 (8 x 2.0 / 2.6 GHz, 12MB cache, 45 W)		
	Intel® Xeon® D1527 (4 x 2.2 / 2.7 GHz, 6MB cache, 35 W)		
	Intel® Pentium™ D1509 (2 x 1.5 GHz, 3MB cache, 19 W)		
	Intel® Pentium™ D1508 (2 x 2.2 / 2.6 GHz, 3MB cache, 25 W)		
	Intel® Xeon® D1559 (12 x 1.5 / 2.1 GHz, 18MB cache, 45 W)		
	Intel® Xeon® D1539 (8 x 1.6 / 2.2 GHz, 12MB cache, 35 W)		
	Intel® Xeon® D1529 (4 x 1.3 GHz, 6MB cache, 20 W)		
DRAM	up to 3 SO-DIMM sockets for DDR4 memory modules up to 16 GByte each (48 GByte total) with 2400 MT/s ECC and non-ECC supported	Embedded BIOS	AMI Aptio UEFI
		Operating Systems	Microsoft® Windows 10 Enterprise
Flash	eMMC 5.0 onboard flash up to 64 GByte		Microsoft® Windows® 8.1
Ethernet	1x Intel I210AT /IT Gigabit Ethernet Controller 2x 10GbE with KR interface support - the 10GbE PHY must be implemented on the carrier board		Microsoft® Windows® 7
			Microsoft® Windows Server 2016
I/O Interfaces	24 x PCI Express GEN 3.0 lanes 8 x PCI Express 2.0 4 x USB 2.0 2 x SATA III LPC bus SPI I ² C bus 2 x UART		Fedora 22
			Ubuntu 14.10
			CentOS 6.6 & 7.1
			FreeBSD 10.3 & 11
			VMware
			Microsoft® Windows Server 2012 R2
			Microsoft® Windows Server 2012
			Microsoft® Windows Server 2008 R2 SP1
Sound	High Definition Audio Interface		RHEL 6.6 & 7.1
Graphics	Intel® Gen 9 HD Graphics with support for DirectX 12 OpenGL 4.3 OpenCL 2.0 OpenGL ES 3.0 MPEG2 full HW acceleration with H.265/HEVC decoding and encoding MVC and 2x independent display support in 4K VP9 PAVP 2.0 HDCP 1.4 (wired), HDCP 2.0 (wireless)		SuSE 11 SP4 & 12 SP1
		Yocto v.2.0 Kernel 4.1	
		Wind River VxWorks 7	
		ESXi	
		RTS Hypervisor	
		Temperature	Operating: 0 to +60 °C commercial grade



MÓDULOS COM EXPRESS MINI TIPO 7 BÁSICO

Intel Xeon D-15XX

MÓDULOS EQUIVALENTES (pregunta a tu comercial o en embebidos@matrix.es)		
Fabricante	Referencia	CPUs
ADVANTECH	SOM5992	Xeon D-1577, D-1548, D-1537, D-1527, D-1559, D-1539 and Pentium D1517, D1508, D1519

ACCESORIOS	
CONGATEC	
conga-B7XD/CSA-HP-T	Standard active cooling solution for high performance COM Express Type 7 module conga-B7XD with integrated heat pipes, 70mm radial 12V PWM fan and 30mm overall heat sink height. All standoffs are M2.5mm thread.
conga-B7XD/CSA-HP-B	Standard active cooling solution for high performance COM Express Type 7 module conga-B7XD with integrated heat pipes, 70mm radial 12V PWM fan and 30mm overall heat sink height. All standoffs are with 2.7mm bore hole.
conga-B7XD/HSP-VP-T	Standard heatspreader for high performance COM Express Type 7 module conga-B7XD with integrated vapor chamber. All standoffs are M2.5mm thread.
conga-B7XD/HSP-VP-B	Standard heatspreader for high performance COM Express Type 7 module conga-B7XD with integrated vapor chamber. All standoffs are with 2.7mm bore hole



MÓDULOS COM EXPRESS MINI TIPO 7

Accesorios



conga-X7/EVAL

ACCESORIOS COM EXPRESS TYPE 7	
CONGATEC	
conga-X7/EVAL	Evaluation Carrier Board for COM Express Type 7 modules with up to four 10GbE SFP+ fiber/copper ports implemented via Intel Cortina 10GbE Phy's. The carrier features an Aspeed AST2500 Board Management Controller (BMC).
COM Express Connector AB, High Speed, Type 7	COM Express Connector AB, High Speed (10Gbs), Type 7



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