

Embedded Board

Product Guide



TO emBEdded OR NOT TO emBEdded



Processor

The SoC Division was started in Feb 2007, in charge of Vortex86 series SoC (System on Chip) products to service/support the global distributors and customers for both the sales management and technical support.



Vortex86 EX series includes the EX, EX2 and the upcoming EX3 in 2023. This tiny and low power consumption line of processors is equipped with a crossbar switch that allows for plenty of I/O for IoT, automation, and industrial applications. And for real-time applications, the current EX2 two-core CPU uses a Primary and Secondary core that can run different OS concurrently, making a system that can process in real-time while utilizing a dedicated CPU core.

Vortex86 DX series includes the DX, DX2 and DX3. This family was originally designed for legacy x86 based applications that need traditional buses such as ISA, PCI, etc.; in the newest DX3 line, the system now utilizes an optional dual-core and also enriches the I/O interface, GPU, SATA and PCIe for legacy applications to take advantage of new technologies. The -40 to 85 °C wide temperature and 15+ year life cycle guarantee had consistently supported a variety of industrial applications for decades.

Code name	Vortex86				
Product number	EX	EX2	DX	DX2	DX3
# of Cores	1	2 (600+400Hz)	1	1	2
Working Temp.	-40°C ~ 85°C				
OS Support	Free DOS, DOS 6.22, PC DOS 7.1, DR-DOS, x-DOS, OD/2, CE7.0, Windows XP Professional, Windows Embedded Standard (XPE), POS Ready (WePOS), Embedded Linux, X-Linux, QNX, VxWorks and FreeBSD.				



i.MX8M Mini is NXP's first embedded multicore application processor built using advanced 14LPC FinFET process technology, providing more speed and improved power efficiency. Backed by NXP's product longevity program, the i.MX8M Minifamily can be used in any general purpose industrial and IoT application.

Code name	NXP i.MX8M Min			
GPU	GCN0 Ultra for 3D, GC320 for 2D			
VPU	Decode 1080p60, H.264, H.264/ Encode 1080p60, H.264			
RAM, LPDDR4	1GB/ 2GB/ 4GB			
# of Cores	4	2	4	2
Working Temp.	-40°C ~ 85°C	-40°C ~ 85°C	0°C ~ 70°C	0°C ~ 70°C
Core	Cortex-A53 1.6GHz			
OS Support	Yocto, Linux, Android			



Braswell is the multicore system-on-a-chip based on Intel's latest microarchitecture and 14nm process technology. It's built for designs that target entry-level 2-in-1 devices, laptops, desktops, and all-in-one PCs.

Apollo Lake is the multicore system-on-a-chip which empowers real-time computing in digital surveillance, new in-vehicle experiences, advancements in industrial and office automation, new solutions for retail and medical, and more. Utilizing Intel's industry-leading 14nm process technology.

Code name	Braswell	Braswell	Braswell	Apollo lake	Apollo lake	Apollo lake
Product number	N3710	N3160	x5-E8000	N4200	J3455	N3350
Product collection	Pentium	Celeron	Atom	Pentium	Celeron	Celeron
Clock speed	1.6GHz	1.6GHz	1.04GHz	1.10GHz	1.5GHz	1.10GHz
Burst speed	2.56GHz	2.24GHz	2.0GHz	2.50GHz	2.3GHz	2.4GHz
# of Cores	4	4	4	4	4	4
OS Support	Windows 10, Windows 10 IoT, Linux					

System on Module

ICOP defined form factor module with variety of I/O support to speed up your development time.

SOM200RD-XI

- DM&P SoC Vortex86DX- 800MHz
- 5S/4U/LAN/LPT/32GPI0/I2C/PWM/IDE
- 256MB / 512MB DDR2 onboard
- Single Voltage +5V @ 330mA

SOM200RD-XI

- DM&P SoC Vortex86DX- 800MHz
- 5S/4U/LAN/LPT/32GPI0/I2C/PWM/IDE
- 256MB / 512MB DDR2 onboard
- Single Voltage +5V @ 330mA

SOM304RD-VI

- DM&P SoC Vortex86DX- 800MHz
- 5S/4U/VGA/LCD/LAN/LPT/32GPI0/PWM/IDE
- 256MB / 512MB DDR2 onboard
- Single Voltage +5V@620mA

SOM304D3

- DM&P SoC Vortex86DX3- 1GHz
- 4S/4U/VGA/LCD/LAN/LPT/Audio/2PCIe/8ADC/I2C/PWM/ISA/16GPI0/SATA
- 1GB / 2GB DDR3 onboard
- Single Voltage +5V @1300mA (Typical)

VDX-6319RD-FC-D

- DM&P SoC Vortex86DX- 800MHz
- 2S/U/LPT/16GPI0
- 256MB DDR2 onboard
- Single Voltage +5V @ 400mA

VDX-DIP-PCIRD

- DM&P SoC Vortex86DX- 800MHz
- 5S/4U/LAN/IDE/PCI/32GPI0/PWM
- 256MB / 512MB DDR2 onboard
- Single Voltage +5V @ 380mA

VDX-DIP-ISARD

- DM&P SoC Vortex86DX- 800MHz
- 5S/4U/LAN/IDE/ISA/32GPI0/PWM
- 256MB / 512MB DDR2 onboard
- Single Voltage +5V @ 380mA

VDX-6300RD

- DM&P SoC Vortex86DX- 800MHz
- 5S/3U/LAN/28GPI0/CF/PWM
- 256MB / 512MB DDR2 onboard
- Single Voltage +5V @ 380mA

NX8MM-D168

- NXP i.MX8M Mini-1.6GHz
- 4S/2U/MIPI-DSI/MIPI-CSII
- GLAN/4PM/3I2C/3SPI/3I2S&SAI/S/PDIF/PCIe/40GPI0
- 2GB/4GB LPDDR4 onboard

VEX-SOM

- DM&P SoC Vortex86EX- 400MHz
- S/2U/LAN/LPT/24PWM/I2C/SPI/Audio/PCIe/ISA/GPI0/SATA/8ADC
- 128MB DDR3 onboard
- Single Voltage +5V @ 380 mA (typical)

VEX2-DIP168

- DM&P SoC Vortex86EX2- 600MHz
- 10S/Max.3/2U/LAN/LPT/2CAN/2I2C/16ADC 12bit/HDA/2PCIe x1/I20GPI0(Max.)/SD or eMMC
- 512MB / 1GB DDR3 onboard
- Single Voltage +5VDC @ 360mA

VDX3-07

- DM&P SoC Vortex86DX3- 1GHz
- 1GB / 2GB DDR3 onboard
- 1S/8U/VGA/LVDS/GLAN/I2C/SPI/AUDIO/PCIe/8GPI0/SD/SATA
- Operation Temperature: -20 ~ +70°C / -40 ~ +85°C (Optional)
- Without: HDMI, Display Port
- Optional: Additional 1S/8GPI0
- Long life-cycle guarantee
- Standard Qseven module

VDX3-SMARC

- DM&P SoC Vortex86DX3- 1GHz
- 1GB / 2GB DDR3 onboard
- 4S/2U/VGA/LCD/LVDS/GLAN/I2C/SPI/AUDIO/PCIe/12GPI0/SD/SATA
- Operation Temperature: -20 ~ +70°C / -40 ~ +85°C (Optional)
- Without: HDMI, CAN Bus, PCAM, I2S, and AFB signal
- Long life-cycle guarantee
- Standard SMARC module
- Long life-cycle guarantee

VDX3-ETX

- DM&P SoC Vortex86DX3- 1GHz
- 1GB / 2GB DDR3 onboard
- 2S/4U/VGA/LVDS/LAN/LPT/I2C/AUDIO/PCI/ISA/16GPI0/IDE/SATA
- Operation Temperature: -20 ~ +70°C / -40 ~ +85°C (Optional)
- Without: Secondary IDE Channel
- Optional: GLAN
- Long life-cycle guarantee

ICOP Taiwan

ICOP Technology Inc.
No.15, Wugong 5th Rd., Xinzhuang Dist., New Taipei City 248020, Taiwan
24890 新北市新莊區五工五路15號
URL: <https://www.icop.com.tw>
E-Mail: info@icop.com.tw
TEL: 886-2-8990-1933
FAX: 886-2-8990-2045

ICOP Japan

ICOP I.T.G.
〒101-0021 東京都千代田区外神田6-16-9-8F
8F 6-16-9 Sotokanda, Chiyoda-ku, Tokyo 101-0021, Japan
URL: <https://www.icop.co.jp>
E-Mail: info@icop.co.jp
TEL: 886-2-8990-1933
FAX: 886-2-8990-2045

ICOP Europe

ICOP Technology GmbH
Beethovenplatz 1-3, 60325 Frankfurt am Main, Germany
URL: <https://www.icoptech.eu>
E-Mail: info@icoptech.eu
TEL: +49 (0) 69-2475-687-0
FAX: +49 (0) 69-2475-687-77

ICOP China

ICOP Technology (BeiJing) Inc
Building 23, Courtyard 6, Haiying Road, Tech. Park of Fengtai District, Beijing, China
URL: <http://www.icop.com.cn>
E-Mail: sales@icop.com.cn
TEL: 86-10-6389-8777
FAX: 86-10-6526-8777

Technology (Xi'An) Inc.

A0502, Pioneering Square, No.48 Ke Ji Rd., XI'AN Hi-Tech Zone, China
URL: <https://www.icop.com.cn>
E-Mail: sales@icop.com.cn
TEL: 86-29-8799-7777
FAX: 86-29-8799-7666

ICOP Technology (ShenZhen) Inc.

Building C, Jinfenghuanghaoyuan, No.46, HePing Road, Longhua District, Shenzhen, China
URL: <https://www.icop.com.cn>
E-Mail: sales@icop.com.cn
TEL: 86-755-2650-0777
FAX: 86-755-2650-5111

ICOP Technology (ShangHai) Inc

Room 902, Building 19, No.1515, Gu-Mei Road Cao-He-Jing High Tech Park, Shanghai, China
URL: <https://www.icop.com.cn>
E-Mail: sales@icop.com.cn
TEL: 86-21-5445-1777
FAX: 86-21-5445-1767

ICOP USA

ICOP Technology Inc.
177 South Brent Circle, City of Industry, CA 91789, U.S.A
URL: <https://www.icoptech.com>
E-Mail: info@icoptech.com
TEL: 1-909-595-2333
FAX: 1-909-595-2331

ICOP Mexico

ICOP Technology S. de R.L. de C.V.
Rio Lerma No.196 Int.301 Cuauhtémoc, C.P. 06500 CDMX
URL: <https://www.icoptech.com>
E-Mail: info@icoptech.com
Teléfono: (55) 5207-2660
Móvil: 556818-1999
Ventas y Soporte Técnico: 556319-7787



Embedded



ICOP



Online Shop

PC/104 SBC

3.5" SBC

ITX Board
Half-Size Board

Tiny Board

**VDX3-6755** PC/104 SBC

- DM&P SoC Vortex86DX3- 1GHz
- 1GB / 2GB DDR3 onboard
- 3S/2U/VGA/LVDS/GLAN/LAN/CAN/SATA
- Operation Temperature: -20 ~ +70°C / -40 ~ +85°C (Optional)
- Isolated RS232 / 485
- Single channel 24-bit LVDS
- Optional: Isolated CANbus

**VDX3-6754-V2** PC/104 SBC

- DM&P SoC Vortex86DX3- 1GHz
- 1GB / 2GB DDR3 onboard
- 4S/2U/VGA/LCD/LVDS/LAN/LPT/Audio/16GPI0/SATA
- Operation Temperature: -20 ~ +70°C / -40 ~ +85°C (Optional)

**VDX3-6726-V2** 3.5" SBC

- DM&P SoC Vortex86DX3- 1GHz
- 1GB / 2GB DDR2 onboard
- 4S/4U/VGA/LCD/LVDS/2GLAN/LAN/PWM/Audio/16GPI0
- Operation Temperature: -20 ~ +70°C
- Onboard 4MB SPI Flash Disk
- PC/104 Connector Onboard

**VDX2-6526-V2** 3.5" SBC

- DM&P SoC Vortex86DX2- 800MHz
- 1GB / 2GB DDR2 onboard
- 4S/4U/VGA/LCD/LVDS/2GLAN/LAN/PWM/Audio/16GPI0
- Operation Temperature: -10 ~ +70°C / -40 ~ +85°C (Optional)
- Onboard 4MB SPI Flash Disk
- PC/104 Connector Onboard

**APL-PITX-N3350-N** ITX Board

- Intel® Apollo Lake J3455 2.30GHz (Burst) 1.50GHz Quad Core
- Intel® Apollo Lake N4200 2.50GHz (Burst) 1.10GHz Quad Core (Option)
- Intel® Apollo Lake N3350 2.40GHz (Burst) 1.10GHz Dual Core
- DDR3L 1866MHz memory support up to 8GB
- Realtek AL888S HD Audio
- Intel® RTL8191 Gigabit Ethernet Controller
- 2S/4U/HDMI/LVDS/GLAN/AUDIO/10GPI0/M.2 M-Key/MiniPCIe
- Operation Temperature: 0 ~ +60°C

**VDX3-PITX** ITX Board

- DM&P SoC Vortex86DX3- 1GHz
- 2GB DDR3 onboard
- 2S/4U/VGA/LAN/AUDIO/16GPI0/ADC/SD card slot
- Operation Temperature: -20 ~ +70°C

**VDX2-6518** Tiny SBC

- DM&P SoC Vortex86DX2-800MHz
- 4S/2U/VGA/LVDS/LAN/LPT/8GPI0/PWM/SD or eMMC
- 512MB / 1GB DDR2 onboard
- Single Voltage +5V @720mA

**VDX-6314RD** Tiny SBC

- DM&P SoC Vortex86DX-800MHz
- 4S/2U/VGA/LVDS/LAN/PWM/16GPI0/IDE
- 256MB / 512MB DDR2 onboard
- Single Voltage +5V @700mA

**VDX2-6554-V2** PC/104 SBC

- DM&P SoC Vortex86DX2- 800MHz
- 512MB / 1GB DDR2 onboard
- 4S/2U/VGA/LCD/LVDS/LAN/LPT/SPI/Audio/16GPI0/SATA
- Operation Temperature: -20 ~ +70°C / -40 ~ +85°C (Optional)
- Onboard 4MB SPI Flash Disk
- Optional: Touch Controller

**VDX3-6754S-V2** PC/104 SBC

- DM&P SoC Vortex86DX3- 600MHz
- 256MB DDR3 onboard
- 4S/2U/VGA/LCD/LVDS/LAN/LPT/16GPI0/SATA
- Operation Temperature: -20 ~ +70°C / -40 ~ +85°C (Optional)

**VDX-6326RD-NF** 3.5" SBC

- DM&P SoC Vortex86DX- 800MHz
- 256MB / 512MB DDR2 onboard
- 4S/3U/VGA/LCD/LVDS/3LAN/PWM/Audio/16GPI0/CF
- Operation Temperature: -20 ~ +70°C / -40 ~ +85°C (Optional)
- Onboard 4MB SPI Flash Disk
- PC/104 Connector Onboard
- Optional: PCI-104 Connector

**VDX-6328RD-NF** 3.5" SBC

- DM&P SoC Vortex86DX- 800MHz
- 4S/3U/VGA/LCD/LVDS/LAN/PWM/Audio/16GPI0/CF
- 256MB / 512MB DDR2 onboard
- DC +5V @ 840mA

**VDX3-EITX** ITX Board

- DM&P SoC Vortex86DX3- 1GHz
- 1GB / 2GB DDR3 onboard
- 3S/6U/VGA/LVDS/LAN/GbE/CF/IDE/SATA
- Operation Temperature: -20 ~ +70°C / -40 ~ +85°C (Optional)
- Optional: CAN Bus

**VDX3-PCI** Half-size SBC

- DM&P SoC Vortex86DX3- 1GHz
- 1GB / 2GB DDR3 onboard
- 2S/2U/VGA/LVDS/GbE/CF/IDE/SATA
- Operation Temperature: -20 ~ +70°C / -40 ~ +85°C (Optional)
- Single channel 24-bit LVDS

**VDX-6315RD** Tiny SBC

- DM&P SoC Vortex86DX-800MHz
- 4S/2U/LAN/LPT/PWM/32GPI0/IDE
- 256MB / 512MB DDR2 onboard
- Onboard 4MB SPI Flash Disk
- Single Voltage +5V @ 400mA
- Operation Temperature: -20~+70°C / -40°C~+85°C (Optional)

**VDX-6316RD** Tiny SBC

- DM&P SoC Vortex86DX-800MHz
- 2S/2U/LPT/PWM/32GPI0/IDE
- 256MB / 512MB DDR2 onboard
- Single Voltage +5V @ 360mA

**VEX2-6454** PC/104 SBC

- DM&P SoC Vortex86EX2- 600MHz
- 512MB / 1GB DDR3 onboard
- 4S/2U/VGA/LCD/LVDS/LAN/LPT/Audio/16GPI0
- Operation Temperature: -20 ~ +70°C / -40 ~ +85°C (Optional)
- 16-bit x-ISA interface
- Optional: Touch Controller
- Optional: Onboard eMMC / MicroSD socket

**NAD11-103-SD** PC/104 SBC

- DM&P SoC Vortex86DX2- 600MHz
- 256MB DDR2 onboard
- 4S/4U/VGA/LCD/LVDS/LAN/i°C/SPI/16GPI0/SD
- Operation Temperature: -20 ~ +70°C
- Onboard 4MB SPI Flash Disk
- Optional: Touch Controller / CH375 DOS USB Hot Swap

**VEX2-6427** 3.5" SBC

- DM&P SoC Vortex86EX2- 600MHz
- 512MB / 1GB DDR3 onboard
- 10S/4U/VGA/LCD/LVDS/LAN/2CAN/2i°C/Audio/MINIPCE
- Operation Temperature: -20 ~ +70°C / -40 ~ +85°C (Optional)

**VEX-6225** 3.5" SBC

- DM&P SoC Vortex86EX- 400MHz
- 512MB DDR3 onboard
- 2S/2U/VGA/LCD/LAN/ADC/CAN/i°C/SIM/3MINIPCE
- Operation Temperature: -20 ~ +70°C / -40 ~ +85°C (Optional)
- 8-CH 11-bit ADC
- Expansion I/O Bus 3U + 24GPI0 or 3U + 3S or 3U + Parallel + SPI

**VDX3-6724-V2** Half-size SBC

- DM&P SoC Vortex86DX3- 1GHz
- 4S/4U/VGA/LCD/LVDS/GLAN/LAN/LPT/Audio/16GPI0/SATA/CF(optional)
- 1GB / 2GB DDR3 onboard
- Operation Temperature: -20 ~ +70°C / -40 ~ +85°C (Optional)
- PC/104 Connector Onboard
- Optional: CF socket / Touch Controller / CH375 DOS USB Hot Swap

**VDX2-6524-V2** Half-Size

- DM&P SoC Vortex86DX2- 800MHz
- 4S/4U/VGA/LCD/LVDS/GLAN/LAN/LPT/PWM/Audio/16GPI0/SATA/CF(optional)
- 512MB / 1GB DDR2 onboard
- Operation Temperature: -10 ~ +60°C
- Onboard 4MB SPI Flash
- PC/104 Connector Onboard
- Optional: Onboard Flash Disk / CF socket / Touch Controller / CH375 DOS USB Hot Swap

**VEX-6254** PC/104 SBC

- DM&P SoC Vortex86EX- 400MHz
- 128MB DDR3 onboard
- 4S/2U/LAN/CAN/i°C/Audio/mPCIe/16GPI0/ADC/SD
- Operation Temperature: -20 ~ +70°C
- 8-CH 11-bit ADC
- Without PC/104 Connector
- Optional: Onboard Flash Disk / MicroSD socket

**VEX-6253** PC/104 SBC

- DM&P SoC Vortex86EX- 400MHz
- 128MB DDR3 onboard
- 1S/2U/LAN/mPCIe/x-ISA/ADC/SATA/mPCI-E 3G module
- Operation Temperature: -20 ~ +70°C
- 16-bit x-ISA interface
- Optional: Mini-PCIe socket / SIM Holder / Onboard Flash Disk / MicroSD socket

**BYT-35-J1900-A** 3.5" SBC

- Intel® Bay Trail J1900 2.42GHz (Burst) 2GHz Quad Core
- DDR3L 1333MHz memory support up to 8GB in SO-DIMM slo
- Realtek ALC662 HD Audiot
- Realtek 8111G Gigabit Ethernet Controller
- 4S/8U/DVI-I/LVDS/2GLAN/Audio/8GPI0/mPCIe/mSATA/SATA
- 9 to 24VDC standard input from DC-in jack support for ATX/AT mode
- Operation Temperature: 0 ~ +60°C

**NX8MM-35** 3.5" SBC

- NXP i.MX8M Mini-1.6GHz/1.8GHz
- 2GB/4GB LPDDR4 onboard
- 4S/4U/HDMI(MIPI-DSI)/MIPI-CSI/GLAN/12c/2SPI/MiniPCIe/16GPI0/HD audio
- Operation Temperature: -20 ~ +70°C / -40°C to +80°C (Optional)
- GPU: GCNanoUltra for 3D acceleration/GC320 for 2D acceleration.
- HDMI: Maximum resolution up to 1920 x 1080 @ 60Hz
- MIPI-DSI(chosen between HDMI): Maximum resolution up to 1920 x 1080 @ 60Hz
- Power Requirement : DC +5-30V
- Operating system: Yocto Linux / Android

**VDX-6324RD** Half-Size

- DM&P SoC Vortex86DX- 800MHz
- 4S/4U/VGA/LCD/LAN/LPT/PWM/16GPI0/CF/IDE
- 256MB / 512MB DDR2 onboard
- Operation Temperature: -20 ~ +70°C / -40 ~ +85°C (Optional)
- Onboard 4MB SPI Flash
- PC/104 Connector Onboard
- Optional: Onboard Flash Disk / CF socket / PCI-104 Connector / Audio

**IBW-6954-E4** PC/104 SBC

- Intel® Atom™ x5-E8000 2.00GHz(Burst) 1.04GHz Quad Core
- Intel® Pentium® N3710 2.56GHz(Burst) 1.6GHz Quad Core
- Intel® Celeron® N3160 2.24GHz(Burst) 1.6GHz Quad Core
- 4S/4U/HDMI/VGA/LVDS/GLAN/AUDIO/LPT/MiniPCIe
- 4GB DDR3L 1600 onboard
- Realtek ALC262 VD
- Operation Temperature: 0 ~ +55°C (with airflow)

**IBW-35-E4** 3.5" SBC

- Intel® Atom™ x5-E8000 2.00GHz(Burst) 1.04GHz Quad Core
- Intel® Pentium® N3710 2.56GHz(Burst) 1.6GHz Quad Core (Option)
- Intel® Celeron® N3160 2.24GHz(Burst) 1.6GHz Quad Core (Option)
- 4GB DDR3L 1600 onboard
- 4S/6U/HDMI/VGA/LVDS/2GLAN/AUDIO/16GPI0/MiniPCIe
- Operation Temperature: 0 ~ +50°C

