

# ECUcore-1021

Communication controller for high performance applications

The ECUcore-1021 is a compact and cost-effective module that is especially suitable for the use in complex networked applications. With its high density of available communication interfaces and the dual-core 1GHz CPU, the module offers outstanding performance at low power dissipation.

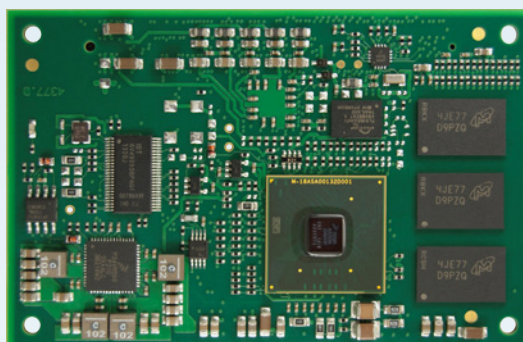
ARM 32-bit Cortex™-A7 dual-core processor

Long-term availability

High density of available I/O's

Low power dissipation

Pre-installed Linux OS



**freescale**  
semiconductor



## Specifications

<b>Controller</b>	Freescale QorIQ LS1021A dual-core Processor
<b>Core Architecture</b>	Dual-core Cortex®-A7, each with 1GHz FPU and Neon co-processor
<b>RAM</b>	1GB DDR3L-1600MT (opt. ECC)
<b>Flash</b>	128MB QSPI NOR
<b>Communication</b>	3x1GbE (1 PHY on-board), 4xCAN, USB 3.0, 2xPCIe, 9xUART, 2xUCC on a ULite QUICC Engine (32-bit RISC co-processor)
<b>Mass Storage</b>	SATA 3.0, SDHC/MMC/eMMC
<b>Video</b>	12-bit DDR pin LCD interface (24-bit RGB)
<b>Audio</b>	4xI2S/ASRC/SPDIF
<b>I/O</b>	FlexTimer (PWM, CNT, ENC), I2C, SPI, GPIO, ADC, 8/16-bit A/D-Bus (FPGA)
<b>Peripherals</b>	Temperature, RTC
<b>Board Connector</b>	220-pin connector (COM Express form factor with customized flexible pinout)
<b>Board Dimensions</b>	55x84 mm (COM Express® mini)
<b>Power Supply</b>	3.3V DC single voltage
<b>Power Dissipation</b>	4.5W (under typical load)
<b>Temperature Range</b>	-40°C...85°C (Storage: -55°C...125°C)
<b>MTBF Predictions</b>	min. 650.000h @ 40°C
<b>Availability</b>	15 years (Freescale Longevity Program)
<b>Thermal Management</b>	Single heat spreader plate, passive cooling
<b>Security and IP Protection</b>	Fuses, System Monitoring, Secure Boot, Firmware Protection, QorIQ Trust Architecture
<b>Others</b>	RTC, temperature sensor, window watchdog, Firmware protection

The ECUcore-1021 is a System On Module based on the Freescale Layerscape LS1021 MCU. The LS1021A offers a high density of communication and I/O interfaces combined on a single chip. This enables the customer to configure the chip and define the available interfaces on the connector independently. This flexibility enables to use the ECUcore-1021 in a wide variety of application scenarios; from simple HMI to a complex network device.

Compared to similar CPUs, the used processor provides high performance at comparatively lower power dissipation. It can usually be used at higher temperatures in industrial environment without active cooling. This not only reduces the needed board space and makes the module very compact, but also is cost-effective.

## About SYS TEC electronic

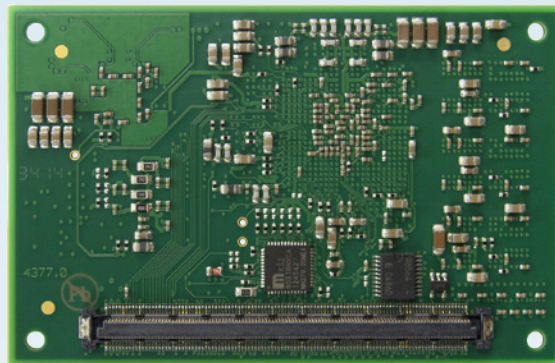
SYS TEC electronic GmbH is a system house for distributed automation technology. We provide a comprehensive service from consulting to OEM integration.

Founded in 1990 in Germany SYS TEC electronic has more than 20 years experience in customized development of microcontroller systems and industrial communication.

For detailed configuration options please contact us!

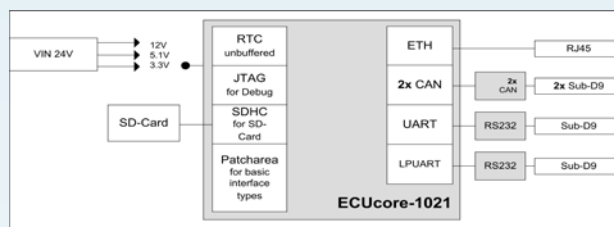
## Software Support

- Linux OS Board Support Package with Real Time preempt patches applied
- Pre-integrated IDE with cross-platform toolchain
- Communication protocols (optional):  
POWERLINK, CANopen, EtherCAT, Profinet, Profibus, Modbus
- IEC 61131-3 PLC Runtime Systems (optional):  
CODESYS V3.5 (3S) or OpenPCS (infoteam Software)
- Target- and Web-Visualization



## Development Kit

The cost-effective Development Kit enables a quick start of application development based on the Freescale Layerscape LS1021A and ECUcore-1021. The most important interfaces are already configured at the Development Board.



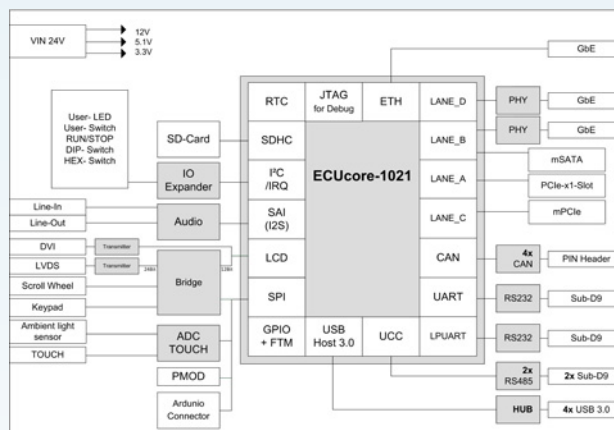
Development Board

## Application Kit

The Application Kit is optimized in its functionality and can serve as a basis for the development of own devices. It is particularly convenient for the use in modern industrial applications that require secure communication and can also be used as an IoT-Gateway.

The Application Carrier Board offers a comprehensive configuration of interfaces. The components on the Carrier Board, were selected on the basis of their long-term availability and reliable operation in industrial environments.

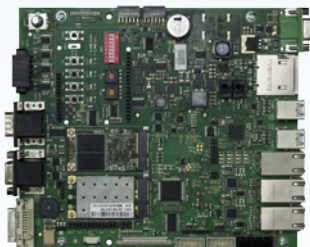
The Application Carrier Board with ECUcore-1021 can be integrated in a ready housing solution and thus be used as a finished product solution.



Application Carrier Board



Development Board



Application Carrier Board with optional mSATA and WiFi Modules

### Kit contents:

- ECUcore-1021
- Development Board or Application Carrier Board
- Virtual machine with IDE and toolchain
- Board schematics, BOM of the Carrier Board
- E-Mail & web support

We're looking forward discussing with you customized versions of our Development Kits or ECUcore-1021 configurations.

Please contact our experts!



### Ordering Information

4001046 ECUcore-1021  
KIT-173 Development KIT  
KIT-174 Application KIT

For quotations please contact us:  
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