neoECU 20

Real-Time, Real Fast ECU Development - 4x DW CAN, 1x SW CAN, 1x LSFT CAN, 4x LIN

The neoECU 20 is a rapid prototyping tool for CAN and LIN ECUs. The neoECU 20 can be set up to control and measure automotive signals in minutes. ECU logic is defined in function block modeling scripts, allowing you to arrive at a workable ECU early in the design process.

Applications:

- Try out new algorithms early in design
- Gateway CAN, LIN, K-Line, analog or digital data
- Integrate into ECU load or ECU test boxes to make them intelligent
- Allow application engineers who are not C programmers try out new ideas
- Create custom test instruments
- Simulate a real ECU environment with dozens of low cost nodes

General Purpose I/O and Expansion

neoECU 20 has six general purpose I/O lines. Each can be programmed to be a digital input or output, and four can be analog inputs. All of these I/O lines can be measured or controlled by the embedded real-time scripting engine. For example, very precise timing measurements can be made using a script for I/O to network message timing applications.

Ordering Information

Part Number	Description
NEOECU-20	neoECU 20 device

neoECU 20

Device Specifications

- neoVI 3G architecture: over 10x the performance of previous devices
- 3 DSPs + 1 RISC processor for 125 MIPS of processing
- Power consumption (typical): 150 mA @ 14.4 VDC
- Sleep power consumption (typical): 8 mA @ 12.0 VDC
- Power supply: 6.5-27V operation
- Temperature range: -40°C to +85°C
- Vehicle connectors: male DB-25 and male DB-9
- One-year limited warranty
- Field-upgradeable flash firmware
- General Purpose IO: 6 MISC IO (0-3.3V on MISC 1-6); 4 can be configured as analog
- General Purpose IO rate report interval: 1 Hz to 10 kHz or based on digital change
- Microsoft-certified USB drivers
- Isolated USB
- Standalone operation, including scripting, receive and transmit messages, expressions, I/O, transport layers
- Battery-backed real-time clock (RTC)

25-Pin Connector Pinout

Pin	Description	Pin	Description
1	SW CAN	14	HS CAN 1 H
2	J1850 VPW	15	HS CAN 1 L
3	LSFT CAN H	16	HS CAN 2 H
4	LSFT CAN L	17	HS CAN 2 L
5	MSCAN H	18	MISC DIO 4
6	MSCAN L	19	HS CAN 3 H
7	ISO L	20	HS CAN 3 L
8	ISO K / LIN 1	21	TSYNC CLK H
9	DBG CLK	22	TSYNC CLK L
10	MISC DIO 1	23	MISC DIO 3
11	MISC DIO 2	24	DBG RESET
12	DBG DATA	25	VBATT
13	GND		

9-Pin Connector Pinout

Pin	Description	Pin	Description
1	LIN 1	6	MISC DIO 5
2	LIN 2	7	MISC DIO 6
3	LIN 3	8	NC
4	LIN 4	9	NC
5	GND		

Timing Specifications

- 64-bit timestamping to an accuracy of 10 microseconds on CAN and LIN networks with no overflow
- 0.5 microsecond accuracy timestamping available if using only one network
- Simultaneous operation on all CAN/LIN networks
- Transmit message double-buffering on all networks allows back-to-back message transmission

Network Specifications – CAN

- 6x CAN Channels
- 4 dedicated ISO11898 Dual Wire CAN physical layers (TJA1040)
- 1 dedicated ISO11519 Low Speed Fault Tolerant CAN physical layer (TJA1054A)
- 1 dedicated Single Wire CAN physical layer GMW3089 / SAE J2411 (MC33897)
- CAN 2.0B active
- Up to 1 Mb/s software-selectable baud rate for Dual Wire CAN channels (auto baud capable)
- Listen-only mode support
- Unterminated network detection
- High Speed Mode, Test Tool Resistor, and High Voltage Wakeup support (SWCAN)

Network Specifications – LIN

- 4x LIN (Local Interconnect), ISO9141, Keyword 2000, or K- and L-Line
- Full support for LIN 1.X, 2.X and J2602
- LIN J2602 / 2.X compatible physical layer
- Software selectable LIN master resistor
- UART-based state machine
- Initialization waveforms, including Fast Init, Five Baud, and Custom
- Programmable timing parameters, including Inter-Byte, TX Inter-Frame, RX Inter-Frame and Initialization Waveforms (0.5 ms resolution)
- Software-selectable baud rate
- LIN Bus Monitor Mode identifies errors: Sync Break Error State and Length, Sync Wave Error, Message ID Parity, TFrameMax/Slave Not Responding, Checksum Error and Transmit Bit Errors
- LIN Bus Master Mode operates at same time as LIN bus monitor
- LIN Bus Slave simulation, with or without an LDF file
- LIN Bus hardware schedule table with support for LIN diagnostics

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