

14 October 2004

## Controller Area Network {CAN}

This document contains information about CAN that I have compiled from various sources.

I do not imply that this is anything other than a list of resources, hardware, documentation, and other information related to CAN.

- As I learn more I try to update this document.
- I invite you to send me an e-mail with new or updated information so that I can update this document.
- I make no statement about any of these listings (good, bad, or otherwise). Information is supplied as-is.
- The listings are in no particular order. [I try to keep the last list in alphabetic order, just for sanity sake and to keep from getting multiple entries on the list.]

### The lists are:

1. CAN controller devices. These are not microcontrollers. They are devices used as peripherals to microcontrollers and microprocessors.
2. Microcontrollers with built in CAN capability. This area of the market changes rapidly.
3. Special CAN boards, etc.
4. CAN transceivers. Dual wire, single wire, and fault tolerant devices are listed.
5. CAN related documents.
6. Products, hardware, software, services, and other stuff. [In alphabetic order.]

### NOTICE:

I pretty much stopped updating this document in October 2004. There is so much information available and I just don't have time to keep this up-to-date.

If you are looking for something in particular, I recommend starting with the CAN in Automation people. Web address: [www.can-cia.org](http://www.can-cia.org). They publish a newsletter that is impressive as a source of CAN 'stuff.' I started to update this document based on their newsletter, but it was overwhelming and seemed redundant.

You are welcome to call or write if you think I can help.  
Thank You and Good Luck. Mike.

# Stand Alone CAN Controllers

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<u>Manufacturer</u>	<u>Part #</u>	<u>Package(s)</u>	<u>Status</u>
Intel	82526		unknown
Intel	82527	PLCC-44 QFP-44	available
Microchip	MCP2510	DIP-18 SOIC-18	available
Microchip	MCP2515	DIP-18 DOIC-18 TSSOP-20	available
Oki Semiconductor	MSM9225	QFP-44	available
Philips	SJA1000	DIP-28 SOIC-28	available
Philips	PCA82C200		obsolete

# Microcontrollers with CAN Capability

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<u>Manufacturer</u>	<u>Part #</u>	<u>Package(s)</u>	<u>Status / Notes</u>
Analog Devices	ADSP-21992	TQFP-176 Mini-BGA-196	available
Atmel	ATmega128CAN11	TQFP-64 QFN-64 CABGA-64	
Atmel	T89C51CC01	VQFP-44 PLCC-44 CABGA-64	
Atmel	T89C51CC02	SOIC-24 SOIC-28 PLCC-28 VQFP-32	available
Atmel	AT89C51CC03	VQFP-44 PLCC-44 CABGA-64	
Atmel	AT90CAN128	TQFP-64 QFN-64	available
Cygnal	C8051F040	TQFP-100	32 objects each with individual masks and more
Dallas (now Maxim)	DS80C390	QFP-64 PLCC-68	available 40 MHz 2 on-chip CAN controllers (2.0B) Lots of other stuff
Fujitsu	MB89210 series	SSOP-30	CAN and LIN
Fujitsu	MB90F428GA	QFP-100 LQFP-100	
Fujitsu	MB90428GA	QFP-100 LQFP-100	
Fujitsu	MB91F367G/8G	QFP-120	
Fujitsu	MB91F376G		
Infineon	C167CS (SAx-C176CS)		2 on-chip CAN controllers (2.0B)
Infineon	TC1130		available with motor control, USB, Ethernet, ...
Infineon	TC1775		2 on-chip CAN controllers with Gateway functions.

# Microcontrollers with CAN Capability

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<u>Manufacturer</u>	<u>Part #</u>	<u>Package(s)</u>	<u>Status / Notes</u>
Maxim (formerly Dallas)	DS80C400	LQFP-100	on-chip CAN, on-chip TCP/IP available
Microchip	PIC18CX58 series	28, 40, 68, 84, and 100 pin packages (package types unknown)	available
Microchip	PIC16C43x (LIN interface)	18 and 20 pin	
Microchip	PIC18Fxxx series PIC18F4680, PIC18F2680, PIC18F4585, PIC18F2585	SDIP-28, SOIC-28, DIP-40, TQFP-44, QFN-44	available
Mitsubishi	7600 series (8-bit)	QFP-44	available
Mitsubishi	M16C/6N series (16-bit)	QFP-100	available
Mitsubishi	M32170 (32-bit)	QFP-240 FBGA-255	available
Mitsubishi	M32171 (32-bit)	LQFP-144	available
Motorola	MC68376	QFP-160	available
Motorola	MC9S12DP256 (Five CAN modules and one J1850)		
Motorola	MC68HC908AZ60A	QFP-64	available
Motorola	HCS12 family (several variants with different on-chip peripherals)		available
Motorola	MPC500 family (high performance, multiple CAN interfaces, ...)		available
Motorola	MPC5200 high performance, lots of peripherals	272 pin, package unknown	available late 2003
Motorola	MFC5282 (ColdFire device)	MAPBGA-256	CAN, Ethernet, and a lot more available

# Microcontrollers with CAN Capability

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<u>Manufacturer</u>	<u>Part #</u>	<u>Package(s)</u>	<u>Status / Notes</u>
Motorola	MC56F8300 family		signal processing, fast FLASH, CAN, and more
NEC	KO family (DCAN)		
NEC	V800 family (FCAN)		
NEC	V850/SBx (family ?)		
NEC	V850/SF1 (family)		FCAN capable
NEC	CarGate (V850E RISC engine)		(5 CAN on-chip controllers)
NEC	Atomic (V850E RISC engine)		(3 CAN on-chip controllers)
Philips	PXAH30KFBE	LQFP-100	
Philips	PXAH40KFBE	LQFP-100	
Philips	P89C512Rx2	DIP-40 PLCC-44	
Philips	P8xC591	DIP-40 PLCC-44	
Philips	P87C591		
Philips	SJA2020		CAN, LIN, ARM7 core available
Renesas	H8/36057 series H8/36037 series		CAN, LIN, FLASH, more available
Siemens	SAB-C515C		available
Siemens	SAB-C165		available
Silicon Laboratories	C8051F04x	TQFP-100 TQFP-64	available
Silicon Laboratories	C8051F06x	TQFP-100 TQFP-64	available
STMicroelectronics	ST7 family		
STMicroelectronics	ST10F168		

# CAN Transceivers

<u>Manufacturer</u>	<u>Part #</u>	<u>Package(s)</u>	<u>Status</u>
AMI Semiconductor	AMIS-X660 CAN [unknown]	SOIC-8	available
Infineon	TLE 6250 G [ISO 11898]	SOIC-8	available
Infineon	TLE 6252 G [ISO 11519]	SOIC-14	available
Infineon	TLE 6255 G [J2411]	SOIC-14	available
Linear Technology	LT1796 [ISO 11898]	SOIC-8 DIP-8	available
Maxim	MAX 3053 [ISO 11898]	SOIC-8	available
Microchip	MCP2551 [ISO 11898]	DIP-8 SOIC-8	available
Philips	AU5790 [J2411]	SOIC-8 SOIC-14	available
Philips	PCA82C250 [ISO 11898]	SOIC-8	available
Philips	PCA82C251 [ISO 11898-24v]	SOIC-8 DIP-8	available
Philips	PCA82C252 [ISO 11519]	SOIC-14	available
Philips	TJA1040 [ISO 11898]	SOIC-8	available
Philips	TJA1041 [ISO 11898]	SOIC-8	available
Philips	TJA1050 [ISO 11898]	SOIC-8	
Philips	TJA1053 [ISO 11519]	SOIC-14	available
Philips	TJA1054 [ISO 11519]	SOIC-14	available
Texas Instruments	SN65HVD230 [ISO 11898]	SOIC-8	available
Texas Instruments	SN65HVD231 [ISO 11898]	SOIC-8	available
Texas Instruments	SN65HVD232 [ISO 11898]	SOIC-8	available
Texas Instruments	SN65HVD251 [ISO 11898]	SOIC-8	available

# CAN Transceivers

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<u>Manufacturer</u>	<u>Part #</u>	<u>Package(s)</u>	<u>Status</u>
Unitrode	UC5350 [ISO 11898]	DIP-8 SOIC-8	to be replaced by SN65HVD251

# CAN Peripherals

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<u>Manufacturer</u>	<u>Part #</u>	<u>Package(s)</u>	<u>Notes</u>
Microchip	MCP25020	??	CAN I/O Expander, plus more
Microchip	MCP25025	??	CAN I/O Expander, plus more
Microchip	MCP25050	??	CAN I/O Expander, plus more
Microchip	MCP25055	??	CAN I/O Expander, plus more



# Documents, Information, and more

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## Documents, Specifications, etc.

ISO 11898

ISO 11519

ISO 15765

ISO 11992

SAE J1939

SAE J2411

Intel: "82527 Serial Communications Controller Architectural Overview"

Order number: 272410-002

27241003.PDF

[This is an especially useful document for working with CAN  
and even more so if using the Intel device.]

## Contact Information

ANSI: [www.ansi.org](http://www.ansi.org)  
Publications from Global Documents: 800-854-7179

SAE: [www.sae.org](http://www.sae.org)  
Publications: 724-776-4841

CAN in automation [CAN-CiA]  
Tons of information and resources from these folks.  
[www.can-cia.org](http://www.can-cia.org)

Dallas: [www.maxim-ic.com](http://www.maxim-ic.com)

Infineon: [www.infineon.com](http://www.infineon.com)

Intel: [www.intel.com](http://www.intel.com)

Linear Technology: [www.linear.com](http://www.linear.com)

Motorola: [www.mot-sps.com](http://www.mot-sps.com)

Philips: [www-us.semiconductors.philips.com/automotive/ivn](http://www-us.semiconductors.philips.com/automotive/ivn)

Texas Instruments: [www.ti.com](http://www.ti.com)

Unitrode: [www.ti.com](http://www.ti.com)

# CAN Boards, Stuff, and more

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## CAN Board

National Instruments  
[www.ni.com](http://www.ni.com)

## CAN Board for PCI bus

TMC CANnes  
Trinamic Microchips  
[www.trinamic.com](http://www.trinamic.com)

## PC/104 Single Board Computer with CAN and Ethernet.

Eurotech  
Roberto Siagri  
+39-0433-486258 (voice)  
+39-0433-486263 (fax)  
[www.eurotech.it](http://www.eurotech.it)

## CAN add-on boards

Saelig Company  
[www.saelig.com](http://www.saelig.com)  
888-7SAELIG

## Development board and environment

Systronix  
[www.systronix.com](http://www.systronix.com)  
801-534-1017

## Tiny CAN Computer

T-CAN (tiny module).  
Wilke Technology GmbH  
[www.wilke-technology.com](http://www.wilke-technology.com)  
+0241 918 900

## Industrial Single Board Computer with CAN

SF-1000  
Seafire Micros, Inc.  
[www.seafiremicros.com](http://www.seafiremicros.com)  
978-317-1831

## Intelligent PC/104 CAN bus interface

SSV SOFTWARE SYSTEMS  
[www.ssv-embedded.de](http://www.ssv-embedded.de)

## CAN Board, USB to CAN Converter, CAN Converters, more CAN stuff

Grid Connect  
[www.gridconnect.com](http://www.gridconnect.com)  
630-245-1445

## CAN Converters and other related equipment

Contemporary Controls  
Downers Grove, IL USA  
630-963-7070  
[www.ccontrols.com](http://www.ccontrols.com)

## CAN adapter, PC Card (PCMCIA ??)

Contemporary Controls  
Downers Grove, IL  
630-963-7070  
[www.ccontrols.com](http://www.ccontrols.com)

## CAN to USB

Intrepid Control Systems  
[www.valuecan.com](http://www.valuecan.com)

## CAN to USB

Apox Controls  
[www.apoxcontrols.com](http://www.apoxcontrols.com)

## CAN to USB

CAN to Bluetooth  
CAN to RS-232  
CAN to Ethernet  
IXXAT, Inc.  
[www.ixxat.com](http://www.ixxat.com)

## CAN to USB

CAN to Ethernet  
SYS TEC electronic GmbH  
[www.systec-electronic.com](http://www.systec-electronic.com)

## CANclip

Eigner Messtechnik  
[www.canclip.com](http://www.canclip.com)

## Actel Corp.

IP Cores  
[www.actel.com/products/auto/index.html](http://www.actel.com/products/auto/index.html)  
888-992-2835

Advanced Vehicle Technologies, Inc.  
www.AVT-HQ.com  
+1-410-798-4308  
Davidsonville, MD

ADVANTECH  
www.advantech.com/IA  
800-800-6889

Akida, LLC  
www.Akida.com  
+1-602-454-2654  
Phoenix, AZ

ARCOM CONTROL SYSTEMS  
www.arcomcontrols.com  
888-941-2224  
Kansas City, MO

Atmel  
www.atmel.com  
+1-408-441-0311  
San Jose, CA

Crossware  
www.crossware.com/can

DEARBORN GROUP  
www.dgtech.com  
+1-248-488-2080  
Farmington Hills, MI

D I P, Inc.  
Www.dipinc.com  
+1-909-924-1730  
Moreno Valley, CA

Diversified Engineering  
www.diversifiedengineering.com  
+1-203-799-7875  
Orange, CT

Drew Technologies, Inc.  
www.drewtech.com  
+1-734-623-8080  
Ann Arbor, MI

EMBEDDED MICRO SOFTWARE  
www.emicros.com  
+1-248-477-6639  
Farmington Hills, MI

Eigner Messtechnik  
www.canclip.com  
Augsburg, Germany

esd gmbh  
www.esd-electronics.com  
+49(511)372980  
Hannover, Germany

I+ME  
www.actia.com  
+1-970-244-1257  
Industrial Computer Group  
www.automsrv.com  
+1-860-651-3434  
East Granby, CT

Inicore  
www.inicore.com  
Fremont, CA

IXXAT, Inc.  
www.ixxat.com  
+49-(0)751/56146-0  
Weingarten, Germany  
+1-413-584-5650

Northampton, MA

JANZ COMPUTER, AG  
www.janzag.de/as/can/can-main.htm  
+49(0)5251/1550-0  
Paderborn, Germany

Kvaser  
www.kvaser.com  
+46 320 152 87  
Fritslavägen 83  
SE-511 42 Kinnahult  
Sweden

NATIONAL INSTRUMENTS  
www.ni.com  
Austin, TX

## PHYTEC

www.phytec.de  
+1-800-278-9913  
Bainbridge Island, WA

## PLS DEVELOPMENT TOOLS

www.pls-mc.com  
+1-408-451-8408  
San Jose, CA

## RIGEL, Corp.

www.rigelcorp.com  
+1-352-373-4629  
Gainesville, FL

## Saelig Company

www.saelig.com  
+1-888-7SAELIG  
+1-716-425-3753  
Victor, NY

## Silicon Laboratories

www.silab.com

## SKYLAKE TALIX

www.talix.co.uk  
+44-1703-666403  
Southampton, UK

## SOFTING

www.softing.com

## SSV SOFTWARE SYSTEMS

www.ssv-embedded.de  
www.ist1.de/ssv/pc104  
+49-511-40-000-28  
Hannover, Germany

## SYS TEC electronic GmbH

www.systec-electronic.com  
49-(0)3661-62790  
Greiz

## Systronix, Inc.

www.systronix.com  
+1-801-534-1017 (or is it 1019 ??)  
East Salt Lake City, UT

## TQ COMPONENTS

www.tqc.de  
+1-770-664-4744  
Roswell, GA

## VECTOR CANTECH

www.vector-informatik.de  
+1-248-449-9290  
Novi, MI

## Wilke Technology GmbH

www.Wilke-technology.com  
+ 0241 918 900  
Aachen, Germany

## WURZ-ELECTRONIK

www.wuerz-elektronik.com  
+49 6475 912944

## ZANTHIC TECHNOLOGIES, Inc.

www.zanthic.com/public/zanthic  
+1-403-526-8318  
Medicine Hat, Alberta, Canada