



CML Microcircuits

COMMUNICATION SEMICONDUCTORS

CML Microcircuits

Product Selector

EDITION

8

CML Focus Products

Products that are production-released and recommended for new designs

CML Microcircuits (CML) has, in over 40 years of operation, developed to be a world-leader in the design, development and support of low-power analogue, digital and mixed-signal semiconductors for telecommunications and control systems worldwide.

As an experienced designer and manufacturer of ultra low-power Application Specific Standard and Custom Product ICs for an ever widening range of communications and control applications, CML builds a wealth of knowledge, experience and support into all of its products.

With a primary focus on all facets of wireless and wireline communications and control applications -from sub-audio through baseband to RF frequencies- CML offers a product portfolio that is second-to-none in the field.

Highly experienced in the design of IC products to operate to proprietary communications systems and protocols, CML's fast expanding custom design resource offers, in addition, unique paths to market for customer designs where a stock CML product does not suit. The newest member of this resource being the proprietary *FirmASIC*[®] technology, combining lowest overall cost, fastest time-to-market and lowest risk, with unsurpassed flexibility.

Ultra Low Power Operation

CML's IC products consume significantly less power and provide more functionality than competing devices. This, of course, offers many 'power/battery-saving' advantages to radio, data and telecoms designs.

High Integration

Permits many more individual functions on a single chip. The majority of CML products comprise multiple functions; all designed to serve not only the main application but also its peripheral and system activities.

As well as providing the main application functions, CML products, generally, offer the 'extra' analogue and digital functional and interfacing requirements not supplied by a DSP or host processor. This drastically reduces the requirement for extra ICs and their companion components, which in turn shrinks the overall PCB footprint requirement, thus allowing the design and production of a much smaller and lower-power end-product.

Updates:

Marine Products section added (Page 13)

CMX7045 AIS SART Processor added (Page 13)

CML Microsystems Plc family tree added (Page 14)

- *FirmASIC*[®] is a registered trademark of CML Microsystems Plc
- RALCWI[™] is a trademark of CML Microsystems Plc
- Function Image[™] is a trademark of CML Microsystems Plc
- Tone Clone[™] is a trademark of CML Microsystems Plc
- dPMR[®] is a registered trademark of the dPMR Association

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FirmASIC[®] Design Technology

FirmASIC[®] is a proprietary component technology from CML that reduces cost, time to market and development risk, with increased flexibility for the designer and the end application. *FirmASIC*[®] combines Analogue, Digital, Firmware and Memory technologies in a single silicon platform that can be focused to deliver the right feature mix, performance and price for a target application family.

Infinite Applications

CML's wide-ranging product portfolio offers an inexhaustable list of application possibilities for these versatile ICs.

Due to the ease of implementation, continuous flexibility and the on-going application and technical support available, a CML IC product is the ideal and time-saving solution to the majority of your communications and/or control problems.

Reliable Customer and Product Support

The CML network of over 100 distributor and representative companies worldwide, allied with its teams of application engineers, provides all CML customers with comprehensive local pre- and after-sales support.

From product inception, through the design, manufacture and qualification stages, CML is there providing unequalled technical and application support.

For further information, please refer to the CML website (www.cmlmicro.com).

RF Products

Product >>>>	CMX990	CMX991	CMX992	CMX993 CMX993W	CMX994	CMX998
Description	GMSK Packet-data Modem with RF Transceiver	RF Quadrature Transceiver	RF Quadrature Receiver	RF Quadrature Modulator	Direct Conversion Receiver	Cartesian Feedback Loop Transmitter
RF Circuits	400MHz to 1GHz	100MHz to 1GHz	100MHz to 1GHz	30MHz to 1GHz	100MHz to 1GHz	30MHz to 1GHz
IF Circuits	Yes	Yes	Yes	Yes	Yes	No
Direct Conversion Receiver	No	No	No	No	Yes	No
Synthesiser	Yes	On-chip PLL	On-chip PLL	No	On-chip PLL	No
Voltage Range	3.0 to 3.6 V and 2.25 to 2.75 V	3.0 to 3.6 V	3.0 to 3.6 V	3.0 to 3.6 V	3.0 to 3.6 V	3.0 to 3.6 V
Modem	GMSK	No	No	No	No	No
Packages	64-pin VQFN	48-pin VQFN	48-pin VQFN	48-pin VQFN	40-pin VQFN	64-pin VQFN
Support Kit		<ul style="list-style-type: none"> • EV9910B • PE0002 	<ul style="list-style-type: none"> • EV9920B • PE0002 	<ul style="list-style-type: none"> • EV9930 • EV9930W • PE0002 		<ul style="list-style-type: none"> • EV9980 • PE0002

Family Applications

- Narrowband Data Over Radio
- Mobitex Data Terminals
- Wireless Telemetry
- EN 300 113 and FCC CFR 47 Part 90
- Digital/Analogue Mixed-mode Radio
- Software Defined Radio
- TETRA and APCO 25 (Phase1 and 2)
- Automatic Identification Systems (AIS)
- ISM Equipments
- Digital TV/CATV Systems
- Wireless LAN
- Wireless Local Loop
- Satellite Comms
- Aviation Systems
- Amateur Radio
- Constant Envelope and Linear Modulation
- FSK, FFSK/MSK, GMSK, C4FM, QPSK and SSB
- π/4DQPSK, 8PSK, QAM

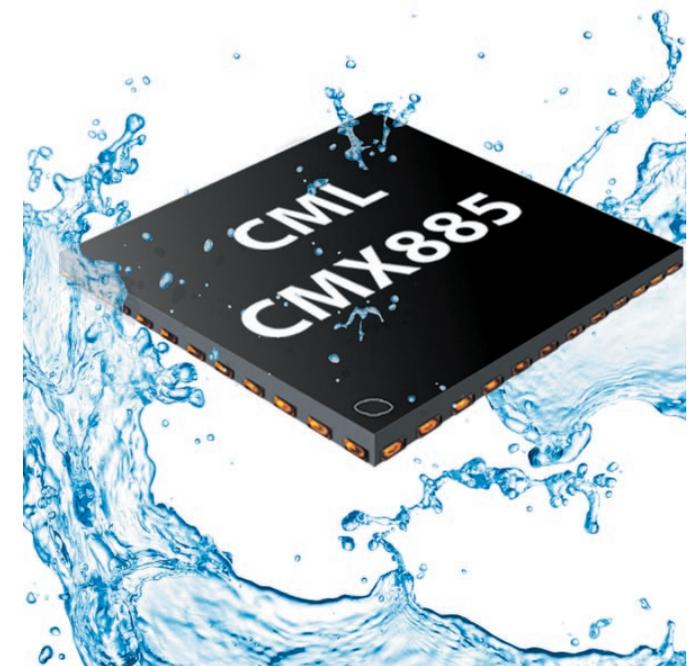


Analogue Two-way Radio Products

Product >>>>	CMX138A	FX/MX465	CMX7031 CMX7041	CMX838	CMX881, CMX882 and CMX883	In Marine Comms
Description	Audio Scrambler and Sub-audio Signalling	Extended-code CTCSS Encoder/Decoder	Two-way Radio Processor (<i>FirmASIC</i> ®)	FRS/PMR446/GMRS: 'Family Radio' Processor	Baseband Processors for PMR, Trunked and Leisure Radios	CMX885 Marine VHF and Signal Processor See Page 13
Function Image™			<ul style="list-style-type: none"> Two-way Radio 4FSK C4FM 			
Voiceband Processing	Full	Voiceband Filters	Full	Full	Full	
In-band Signalling	Tones	No	<ul style="list-style-type: none"> DTMF Decode NOAA NWR Selcall Tones 	No	<ul style="list-style-type: none"> Selcall DTMF XTCSS 	
Sub-audio Signalling	<ul style="list-style-type: none"> CTCSS DCS 	CTCSS	Yes	50-tone CTCSS	<ul style="list-style-type: none"> CTCSS DCS 	
Voice Scrambling	Frequency Inversion	No	Frequency Inversion	No	Frequency Inversion	
Data	No	No	<ul style="list-style-type: none"> FFSK/MSK 4FSK C4FM 	No	FFSK/MSK	
Synthesiser/s	No	No	Two	One	No	
Auxiliaries	<ul style="list-style-type: none"> ADCs/DACs System Clocks RAMDAC 	No	<ul style="list-style-type: none"> ADCs/DACs System Clocks 	No	No	
Voltage Range	3.0 to 3.6 V	2.7 to 5.5 V	3.0 to 3.6 V	2.7 to 5.5 V	CMX881 and CMX882: <ul style="list-style-type: none"> 2.7 to 5.5 V CMX883: <ul style="list-style-type: none"> 2.7 to 3.6 V 	
Packages	28-pin TSSOP	<ul style="list-style-type: none"> 24-pin SSOP 24-pin SOIC 24-pin PDIP 24-pin TSSOP 	<ul style="list-style-type: none"> 64-pin LQFP 64-pin VQFN 48-pin LQFP 48-pin VQFN 	28-pin TSSOP	<ul style="list-style-type: none"> 28-pin SSOP 28-pin TSSOP 	
Support Kit	No	No	<ul style="list-style-type: none"> PE0201 PE0402 PE0002 	No		

Family Applications

- Analogue PMR/LMR and/or Trunked Radio
- FRS, GMRS, MURS and PMR446 Leisure Radio
- Wireless Data Comms
- Fixed and Rolling Code Speech Scramblers
- Mobile, Fixed and Community Base Stations
- Status and Alarm Systems
- Marine Radio
- Aviation and Amateur Radio
- National Weather Radio Rx Systems
- Paging Systems (Selcall or Data)
- Tone Squelch Systems (In-band or Sub-audio)
- Tone Signalling Applications
- Amateur Radio



Analogue Two-way Radio Products

Product >>>>	FX/MX128	FX214 FX224	CMX264	CMX823
Description	Audio Band 'Frequency Inversion' Scrambler	Variable Split-band Audio Scrambler	Frequency Domain Split-band Scrambler	Programmable Paging-tone Decoder
Voiceband Processing	Bandpass and Lowpass Filters	<ul style="list-style-type: none"> Voiceband Filters CTCSS Highpass 	No	No
In-band Signalling	No	No	No	<ul style="list-style-type: none"> 32-user Programmed Tones Multi-tone Decoder
Sub-audio Signalling	No	No	No	No
Voice Scrambling	Frequency Inversion	Variable Split-band	Split-band Inversion	No
Voltage Range	3.0 to 5.5 V	4.5 TO 5.5 V	2.7 to 3.75 V	2.7 to 5.5 V
Packages	<ul style="list-style-type: none"> 16-pin SOIC 16-pin TSSOP 	24-pin PLCC	24-pin SSOP	16-pin TSSOP
Support Kit	No	No	On-line Scrambling Demo	No

- CMX264 Frequency domain split-band scrambler IC demonstration available on the CML website

Family Applications

- Cordless Telephones
- Mobile Radio
- FRS, GMRS, MURS and PMR446 Family Radio
- Wireless PABX
- Fixed and Rolling Code Speech Scramblers
- Two-tone to Five/Six Tone and Voice Pagers
- Audio Tone Signalling Applications



Digital PMR/LMR Products

Product >>>>	CMX7131 CMX7141	CMX8341	CMX981	CML RF Products
Description	Digital PMR Processors (FirmASIC®)	Digital PMR (dPMR®) Baseband Processor with Legacy Analogue PMR	Advanced Digital Radio Baseband Processor with Voice Codec	
Function Image™	<ul style="list-style-type: none"> dPMR® Analogue Two-way Radio 4FSK (DCR) 	dPMR® + Analogue Two-way Radio		
Baseband Processor	Full (7031/7041FI-1.x)	Full: Digital and Analogue	Full	
Voice Codec	No (see Digital Voice)	Integral RALCWI™ Function Rate: (with FEC): 3.6kbps (without FEC): 2.4kbps	Yes	<ul style="list-style-type: none"> CMX991 CMX992 CMX993/CMX993W CMX994 CMX998
Data	4FSK (2.4 and 4.8 ksps)	4FSK (2.4 and 4.8 ksps)	$\pi/4$ DQPSK	See Page 2
Auxiliaries	<ul style="list-style-type: none"> ADCs/DACs RAMDAC Serial Clocks 	<ul style="list-style-type: none"> ADCs/DACs RAMDAC Serial Clocks 	<ul style="list-style-type: none"> ADCs/DACs RAMDAC Speaker Amp Loudspeaker Amp 	
Voltage Range	3.0 to 3.6 V	3.0 to 3.6 V	2.5 to 3.6 V	
Packages	<ul style="list-style-type: none"> 64-pin LQFP 48-pin LQFP 64-pin VQFN 48-pin VQFN 	100-pin LQFP	64-pin VQFN	
Support Kit	<ul style="list-style-type: none"> PE0402 DE6181 ATB010 PE0002 		EV9810	

Family Applications

- Digital PMR/LMR Radios
- dPMR® Systems
- ETSI TS 102 490
- EN 301 166
- EN 300 113
- ARIB STD-T98 DCR
- TETRA (Trunked) Radio Systems
- RCR-39 (Japan) Systems
- Digital Wireless Local Loop
- Satcom Terminals
- Terrestrial Flight Telephone Systems
- Mixed-mode Analogue/Digital Radios



- CML is a member of the DMR Association
- dPMR® CML is a member of the dPMR Association
- ETSI European Telecommunications Standards Institute - CML is an active member of ETSI
- ARIB Association of Radio Industries and Businesses - Japanese association for telecommunications, the convergence of telecommunications and broadcasting and the promotion of radio-related industries

Digital Voice Products

Product >>>>	CMX608 CMX618 CMX638	FX619	MX629	CMX639	CMX649	CMX7261
Description	RALCWI™ Vocoders	Eurocom Delta Codec	Military Delta Modulation Codec	CVSD Voice Codec	Adaptive Delta Modulation (ADM) Codec	Voice Multi Transcoder (FirmASIC®)
Voice-data Scheme	RALCWI™	CVSD	CVSD	CVSD	<ul style="list-style-type: none"> • ADM • CVSD • PCM 	<ul style="list-style-type: none"> • ADM • CVSD • PCM • G.729A • G.711
Voiceband Codec	<ul style="list-style-type: none"> • CMX618 • CMX638 	Yes	Yes	Yes	Yes	Yes
Data Rates	<ul style="list-style-type: none"> • 2050bps • 2400bps • 2750bps • 3600bps (with FEC) 	8 to 64 kbps	8 to 64 kbps	8 to 64 kbps	16 to 128 kbps	<ul style="list-style-type: none"> • APCM 64 to 128 kbps • CVSD 16 kbps
Voiceband Processing	Vocoding; Input and Output Filters	Input and Output Filters	Input and Output Filters	Input and Output Filters	<ul style="list-style-type: none"> • Input and Output Filters • Digital Scrambling 	Input and Output Filters
Signalling	Regeneration of: <ul style="list-style-type: none"> • DTMF • Audio Tone/s 	No	No	No	No	No
Voltage Range	3.0 to 3.6 V	4.5 to 5.5 V	4.5 to 5.5 V	3.0 to 5.5 V	2.7 to 5.5 V	3.0 to 3.6 V
Packages	<ul style="list-style-type: none"> • 48-pin LQFP • 48-pin VQFN 	<ul style="list-style-type: none"> • 22-pin DIL • 24-pin PLCC • 28-pin CLCC 	<ul style="list-style-type: none"> • 22-pin DIL • 24-pin PLCC 	<ul style="list-style-type: none"> • 16-pin SOIC • 24-pin TSSOP 	<ul style="list-style-type: none"> • 20-pin SOIC • 20-pin TSSOP 	64-pin VQFN
Support Kit	<ul style="list-style-type: none"> • EV6180 • EV6380 • DE6181 • PE0002 	No	No	No	DE6491	<ul style="list-style-type: none"> • PE0601 - 7261 • PE0002

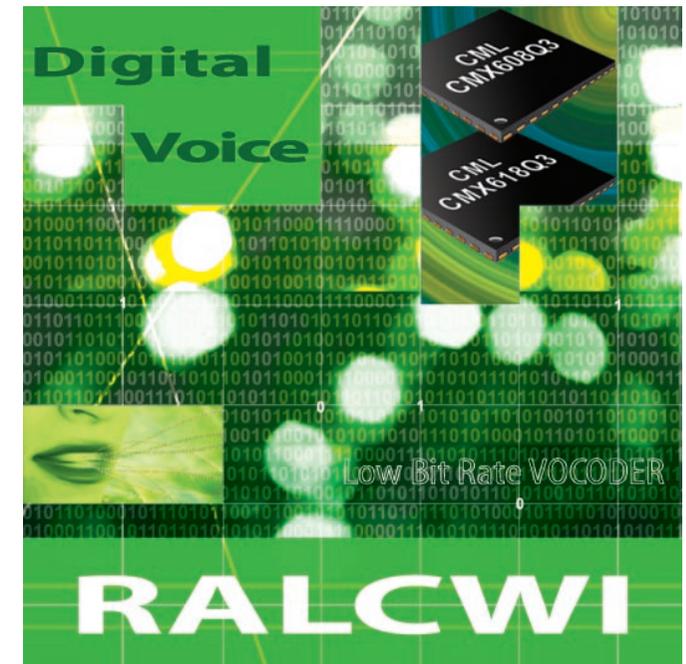
- ADM
- CVSD
- PCM
- RALCWI™

Adaptive Delta Modulation
Continuously Variable Slope Delta modulation
Pulse Code Modulation
A CML Digital Voice Technology

In June 2011 CML acquired the exclusive rights to the RALCWI™ low bit-rate vocoder products from Spirit Corp (Spirit).

Family Applications

- Digital Radio:
 - PMR/LMR and Trunked
- DMR TDMA and FDMA
- Voice-over IP (VoIP)
- Regenerative Digital Voice Systems
- Voice Scrambling and Encryption
- Time Domain Scramblers
- Cordless Telephone
- Military Communications
- Voice Annunciators
- Voice Recording and Storage
- Voice Annunciators
- Delay Lines
- Time Division Duplex (TDD) Systems



Narrowband Wireless Data Products

Product >>>	CMX469A	CMX589A	CMX7143	CMX7163	In Marine Products
Description	1200/2400/4800 Baud FFSK Modem	GMSK Modem	Multi-mode Wireless Data Modem (FirmASIC®)	QAM Modem (FirmASIC®)	
Function Image™			<ul style="list-style-type: none"> GMSK/GFSK 4-FSK FFSK/MSK 	QAM - FI-4.x	
Data Type	FFSK/MSK	GMSK	<ul style="list-style-type: none"> GMSK/GFSK 4-FSK FFSK/MSK 	QAM	
Data Range	<ul style="list-style-type: none"> 1200 2400 - Baud 4800 	<ul style="list-style-type: none"> 4 to 200 kbps BT: 0.3/0.5 	<ul style="list-style-type: none"> FI-1.x: 4 to 20 kbps FI-2.x: 4 to 20 kbps FI-3.x: 1200 and 2400 Bd 	4, 16 and 64 QAM (up to 96kbps)	<ul style="list-style-type: none"> CMX7032/CMX7042 DE70321 CMX7045
Auxiliaries	No	No	<ul style="list-style-type: none"> ADCs/DACs RAMDAC System Clocks 	<ul style="list-style-type: none"> ADCs/DACs RAMDAC System Clocks GPIOs 	See Page 13
Voltage Range	3.0 to 5.5 V	3.0 to 5.5 V	3.0 to 3.6 V	3.0 to 3.6 V	
Packages	<ul style="list-style-type: none"> 20-pin SOIC 24-pin TSSOP 	<ul style="list-style-type: none"> 24-pin SOIC 24-pin SSOP 24-pin TSSOP 24-pin PDIP 	<ul style="list-style-type: none"> 48-pin LQFP 48-pin VQFN 	<ul style="list-style-type: none"> 64-pin LQFP 64-pin VQFN 	
Support Kit	No	No	<ul style="list-style-type: none"> PE0402 PE0002 	<ul style="list-style-type: none"> PE0601 - 7163 PE0002 	

- ISM Industrial, Scientific and Medical (radio)
- M2M Machine-to-Machine
- SCADA Supervisory Control and Data Acquisition

Family Applications

- Narrowband Radio Systems
- Data Over Radio (FFSK/MSK, 4-LFSK, GMSK/GFSK, QAM)
- Automatic Identification Systems (AIS)
- PMR and Trunked Radio Signalling
- Traffic (Vehicle) Location Systems (Differential GPS)
- Cordless Telephone
- M2M Industrial Control and Signalling
- SCADA Implementations
- Point-of-Sale Terminals
- Bar Code Readers and Stock Control
- Packet Radio Systems
- Wireless Telemetry
- One-way and Two-way Paging
- Digital Software Defined Radio (SDR)
- Mobitex Wireless Data Systems
- ISM Implementations



Narrowband Wireless Data Products

Product >>>>	CMX7164	CMX909B	FX/MX919B	FX929B	CMX969	CMX990
Description	QAM Modem (FirmASIC®)	GMSK Packet Data Modem	4-Level FSK Packet Data Modem	4-Level FSK RD-LAP Packet Data Modem	4-Level FSK (RD-LAP/ MDC4800) Modem	GMSK Packet-data Modem with RF Transceiver
Function Image™	<ul style="list-style-type: none"> • QAM - FI-4.x • 2/4FSK - FI-2.x 					
Data Type	<ul style="list-style-type: none"> • QAM • 2/4FSK 	GMSK	4-FSK	4-FSK	4-FSK	GMSK
Data Range	<ul style="list-style-type: none"> • 4, 16, 64 QAM (up to 96kbps) • 2/4FSK (20kbps in 25kHz) 	4.0 to 38.4 kbps	4.8 to 19.2 kbps	RD-LAP: 19.2kbps	<ul style="list-style-type: none"> • RD-LAP: 19.2kbps • MDC: 4.8kbps 	
Auxiliaries	<ul style="list-style-type: none"> • ADCs/DACs • RAMDAC • System Clocks • GPIOs 					
Voltage Range	3.0 to 3.6 V	2.7 to 5.5 V	3.0 to 5.0 V	3.0 to 5.0 V	2.7 to 5.5 V	
Packages	<ul style="list-style-type: none"> • 64-pin LQFP • 64-pin VQFN 	<ul style="list-style-type: none"> • 24-pin SSOP • 24-pin TSSOP 	<ul style="list-style-type: none"> • 24-pin SOIC • 24-pin SSOP 	24-pin SSOP	24-pin SSOP	
Support Kit	<ul style="list-style-type: none"> • PE0601 - 7164 • PE0002 					

See Page 2
(RF Products)

Family Applications

- Wireless Data Applications
- Point-to-Point Telemetry; SCADA
- M2M Industrial Control and Signalling
- Traffic (Vehicle) Location Systems (Differential GPS)
- Digital Software Defined Radio (SDR)
- Licence-free Radio Data
- ISM Implementations
- Wireless Bar-code Readers
- Point-of-Sale Terminals
- One-way and Two-way Paging



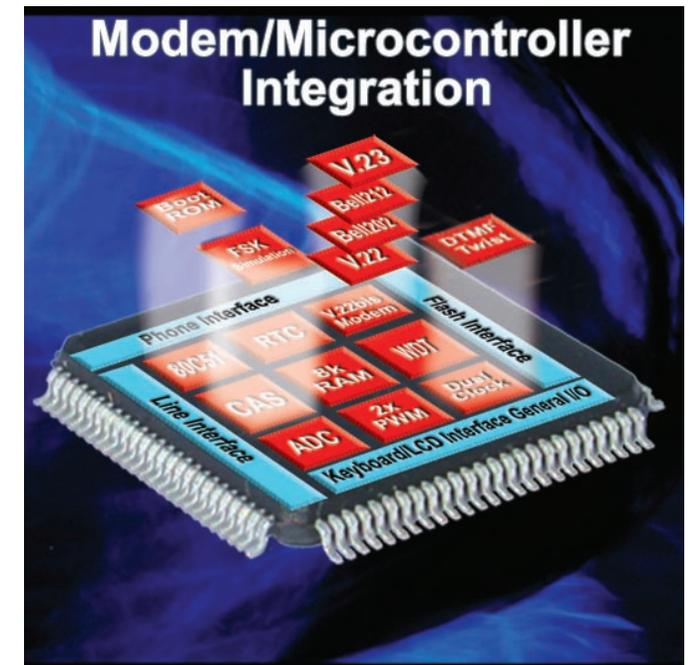
Wireline Data Products

Product >>>>	FX/MX604	FX/MX614	CMX654	CMX850	CMX860
Description	V.23 Compatible Modem	Bell 202 Compatible Modem	V.23 Transmit Modulator	Communications Controller with Embedded 8051 μ C	Telephone Signalling Transceiver
Data Scheme/s	V.23	Bell 202	V.23	<ul style="list-style-type: none"> V.22 bis V.22 V.23 V.21 Bell Equiv. 	<ul style="list-style-type: none"> V.23 Bell 202
Signalling	No	No	No	<ul style="list-style-type: none"> DTMF/Tones Call Progress CAS Tone Detect 	<ul style="list-style-type: none"> Call Progress DTMF/Dual Tone
Auxiliaries	Fixed Line Equalisation	Fixed Line Equalisation	No	<ul style="list-style-type: none"> Line Reverse Ring Detect Off-Hook Detect 	<ul style="list-style-type: none"> Ring Detect Off-Hook Detect
Voltage Range	3.0 to 5.5 V	3.0 to 5.5 V	3.0 to 5.5 V	3.0 to 3.6 V	2.7 to 5.5 V
Packages	<ul style="list-style-type: none"> 16-pin SOIC 16-pin PDIP 24-pin TSSOP 	<ul style="list-style-type: none"> 16-pin SOIC 16-pin PDIP 24-pin TSSOP 	16-pin SOIC	100-pin LQFP	<ul style="list-style-type: none"> 28-pin SOIC 28-pin SSOP 28-pin TSSOP
Support Kit	No	No	No	EV8500	No

- | | |
|-------------------------------|-------------------------------------|
| <input type="checkbox"/> AIS | Automatic Identification System |
| <input type="checkbox"/> DSC | Digital Selective Calling |
| <input type="checkbox"/> ISDN | Integrated Services Digital Network |
| <input type="checkbox"/> PABX | Public Automatic Branch Exchange |
| <input type="checkbox"/> PSTN | Public Switched Telephone Network |

Family Applications

- Wireline and Wireless Telemetry
- Security and Alarm Systems
- AIS Digital Selective Calling (DSC - FSK)
- Radio Packet Data Systems
- Bell Wireline Telephone and Telemetry
- Telephones, Featurephones, Payphones and PABX
- Calling Line ID (CLI)
- Pair-Gain Systems
- Public Switched Telephone (PSTN) Systems
- Integrated System Digital Network (ISDN)
- Least Cost Routers and Internet Appliances
- Remote Meter Reading
- Set-top Boxes

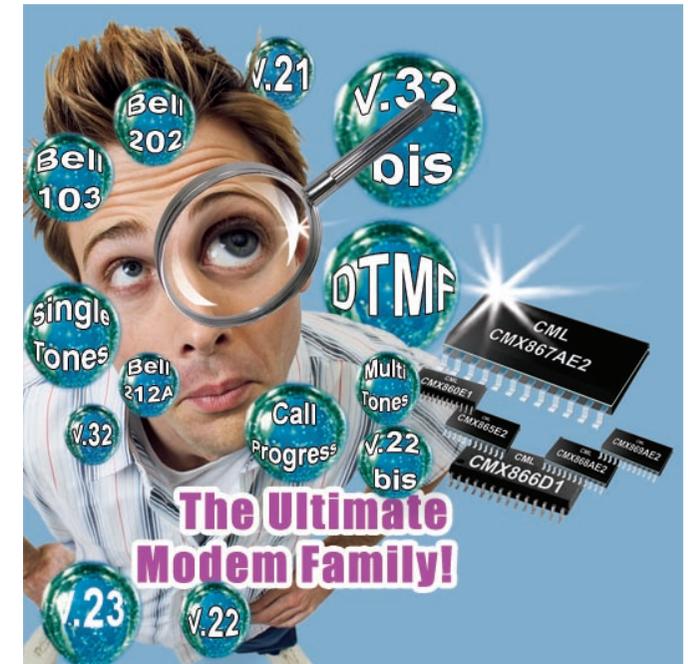


Wireline Data Products

Product >>>>	CMX865A	CMX866	CMX867A	CMX868A	CMX869B
Description	DTMF Codec/FSK Combo	V.22 bis Modem with AT Command Set	Low Power V.22 Modem	Low Power V.22 bis Modem	Low Power V.32 bis Modem
Data Scheme/s	<ul style="list-style-type: none"> V.23 V.21 Bell Equiv. 	<ul style="list-style-type: none"> V.22 bis V.22 V.23 V.21 Bell Equiv. 	<ul style="list-style-type: none"> V.22 V.23 V.21 Bell Equiv. 	<ul style="list-style-type: none"> V.22 bis V.22 V.23 V.21 Bell Equiv. 	<ul style="list-style-type: none"> V.32 bis V.32 V.22 bis V.22 V.23 V.21 Bell Equiv.
Signalling	<ul style="list-style-type: none"> DTMF Tone/s CLI Support Call Progress Detect 	<ul style="list-style-type: none"> DTMF Tone/s CLI Support 	<ul style="list-style-type: none"> DTMF Tone/s CLI Support Call Progress Detect 	<ul style="list-style-type: none"> DTMF Tone/s CLI Support Call Progress Detect Answer/Originate Tones 	<ul style="list-style-type: none"> DTMF Tone/s CLI Support Call Progress Detect Answer/Originate Tones
Auxiliaries	USART	<ul style="list-style-type: none"> Ring Detect Off Hook Detect 	<ul style="list-style-type: none"> USART Ring Detect Off Hook Detect Line Hybrid 	<ul style="list-style-type: none"> UART Ring Detect Off Hook Detect Line Hybrid 	Ring Detect
Voltage Range	3.0 to 3.6 V	2.7 to 5.5 V	2.7 to 5.5 V	2.7 to 5.5 V	3.0 to 3.6 V
Packages	<ul style="list-style-type: none"> 16-pin SOIC 16-pin TSSOP 	28-pin SSOP	<ul style="list-style-type: none"> 24-pin SOIC 24-pin TSSOP 	<ul style="list-style-type: none"> 24-pin SOIC 24-pin TSSOP 	<ul style="list-style-type: none"> 24-pin SOIC 24-pin TSSOP
Support Kit	<ul style="list-style-type: none"> EV8600 DE8681 HB865A PE0002 	DE8661	<ul style="list-style-type: none"> EV8600 DE8681 PE0002 	<ul style="list-style-type: none"> EV8600 DE8681 PE0002 	<ul style="list-style-type: none"> EV8600 DE8691 PE0002

Family Applications

- Wireline and Wireless Telemetry
- Security and Alarm Systems
- Bell Wireline Telephone and Telemetry
- Telephones, Featurephones, Payphones and PABX
- Calling Line ID (CLI)
- Pair-Gain Systems
- Public Switched Telephone (PSTN) Systems
- Integrated System Digital Network (ISDN)
- Least Cost Routers and Internet Appliances
- Remote Meter Reading
- Set-top Boxes



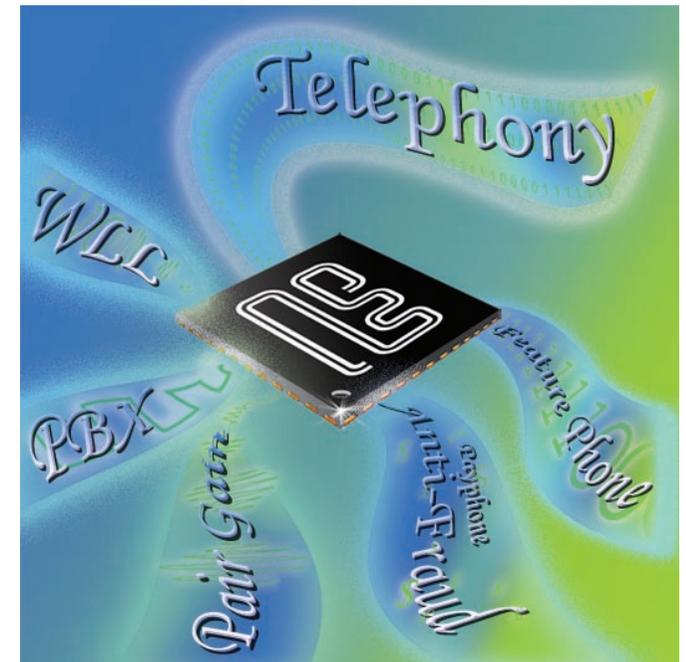
Wireline Telephony Products

Product >>>>	FX/MX019 FX/MX029	CMX602B	CMX605	CMX612
Description	Digitally Controlled Quad or Dual Amp Array	Calling Line Identifier plus Call Waiting	Digital-to-Analogue (POTS) Signalling Interface	Calling Line ID plus Dial Tone Decode for VMWI
Signalling	No	CLI and CIDCW Detect	<ul style="list-style-type: none"> • DTMF • SPM Generate • Ringing Signals • Flexible Tones: FAX Answer/Organize 	<ul style="list-style-type: none"> • CLI and CIDCW Detect • VMWI Decode
Digitally Controlled Amplifiers	<ul style="list-style-type: none"> • Four Amps • Two Amps 	No	No	No
Data	No	FSK V.32/Bell 202 Demodulator	FSK V.23/Bell 202 Encoder	FSK V.23/Bell 202 Demodulator
Auxiliaries	No	<ul style="list-style-type: none"> • Tone Alert • On or Off Hook Operation 	<ul style="list-style-type: none"> • UART • Summing Amp 	<ul style="list-style-type: none"> • CPE Alerting-Signal Detector • Ring or Line Polarity Reversal Detector
Voltage Range	4.5 to 5.5 V	2.7 to 5.5 V	2.7 to 5.5 V	2.7 to 5.5 V
Packages	16-pin SOIC	<ul style="list-style-type: none"> • 16-pin SOIC • 16-pin TSSOP • 16-pin PDIP 	16-pin SOIC	20-pin TSSOP
Support Kit	No	No	No	No

- | | |
|--------------------------------|--|
| <input type="checkbox"/> CLI | Calling Line Identity |
| <input type="checkbox"/> CIDCW | Calling Line Identity with Call Waiting |
| <input type="checkbox"/> POTS | Plain Old Telephone System (basic analogue telephone system/s) |
| <input type="checkbox"/> VMWI | Voice (or Visual) Message Waiting Indication |

Family Applications

- Audio, Data and Level Gain Setting
- Automatic and Manual Test Equipment
- Calling Line ID and Call Waiting Systems
- Voice Messaging
- Adjunct Boxes
- No-ring Calling
- Call Monitoring
- Wireless Local Loop
- ISDN Terminal Adapters
- FeaturePhones, PayPhones and PBX/PABXs
- Utility Metering



Wireline Telephony Products

Product >>>>	CMX631A	CMX641A	CMX673	CMX683
Description	SPM Decoder	Dual SPM Detector plus Payphone Security	Call Progress Tone Decoder	Call Progress and "Voice" Detector
Signalling	12 and 16 kHz Detect	<ul style="list-style-type: none"> • SPM: Two 12 and 16 kHz Detectors • Security Tone Encoder 	Single and Dual (Call Progress) Tone Detectors	Single and Dual (Call Progress) Tone Detectors
Voice	Speechband Rejection	Speechband Rejection	No	Voice Detect
Data	No	No	No	No
Auxiliaries	No	No	No	No
Voltage Range	2.7 to 5.5 V	2.7 to 5.5 V	2.7 to 5.5 V	2.7 to 5.5 V
Packages	<ul style="list-style-type: none"> • 16-pin SOIC • 24-pin SSOP • 16-pin PDIP 	24-pin SOIC	<ul style="list-style-type: none"> • 16-pin SOIC • 20-pin TSSOP • 8-pin PDIP 	<ul style="list-style-type: none"> • 16-pin SOIC • 16-pin TSSOP • 8-pin PDIP
Support Kit	No	No	No	No

Family Applications

- Subscriber Pulse Metering (SPM)
- PABX Line Cards
- Wireless Local Loop
- Payphone and FeaturePhone Systems
- Banking and Billing Systems
- Voice Messaging



Marine Products

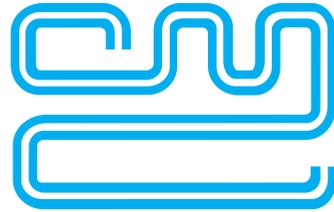
Product >>>>	Marine Safety Products				Marine Communication Products	
	CMX910	CMX7032 CMX7042	DE70321	CMX7045	CMX885	Product
Description	Marine AIS Baseband Processor	AIS Baseband Processor (<i>FirmASIC</i> ®)	AIS Development and Demonstration Kit	Marine AIS SART Processor (<i>FirmASIC</i> ®)	Marine VHF and Signalling Processor	Description
Function Image™		<ul style="list-style-type: none"> AIS Processor (A and B) AIS Rx-only Processor 	<ul style="list-style-type: none"> Class B Transceiver Rx Only 	AIS SART	Full	Voiceband Processing
Data Type	<ul style="list-style-type: none"> GMSK/GFSK FSK DSC 	<ul style="list-style-type: none"> GMSK FSK DSC 	<ul style="list-style-type: none"> GMSK FSK DSC 	<ul style="list-style-type: none"> GMSK AIS SART Formatted Data 	<ul style="list-style-type: none"> DTMF NOAA NWR Audio Tones 	In-band Signalling
					No	Sub-audio Signalling
Data Range	AIS	AIS	AIS	AIS SART	1200bps FSK (DSC/ATIS)	Data
					Frequency Inversion	Voice Scrambling
Auxiliaries	<ul style="list-style-type: none"> ADCs/DACs RAMDAC AIS Slot Clock 	<ul style="list-style-type: none"> RF Synths ADCs/DACs RAMDAC System Clocks 	<ul style="list-style-type: none"> RF Synths ADCs/DACs RAMDAC System Clocks via test points 	<ul style="list-style-type: none"> RF Synths ADCs/DACs RAMDAC System Clocks 	<ul style="list-style-type: none"> ADCs/DACs Serial Clocks RAMDAC 	Auxiliaries
Voltage Range	3.0 to 3.6 V	3.0 to 3.6 V	5.25 to 7.6 V	3.0 to 3.6 V	3.0 to 3.6 V	Voltage Range
Packages	<ul style="list-style-type: none"> 64-pin LQFP 64-pin VQFN 	<ul style="list-style-type: none"> 64-pin LQFP 64-pin VQFN 48-pin LQFP 48-pin VQFN 	AIS CMX7032 or CMX7042 IC On Board	<ul style="list-style-type: none"> 48-pin LQFP 48-pin VQFN 	<ul style="list-style-type: none"> 48-pin LQFP 48-pin VQFN 	Packages
Support Kit	EV9100	<ul style="list-style-type: none"> PE0201 PE0402 PE0002 DE70321 		<ul style="list-style-type: none"> PE0402 PE0002 	EV8850	Support Kit

- AIS Automatic Identification System
- SART Search and Rescue Transmitter (Marine AIS)
- NOAA National Oceanic and Atmospheric Administration - Official US weather, marine, meteorological, fire and aviation forecasts and warnings organisation
- NWR NOAA Weather Radio - Network of radio stations broadcasting continuous local weather information

Family Applications

- Marine Safety Equipment
 - Automatic Identification Systems (AIS)
 - AIS Search and Rescue Transmitter (SART) Systems
 - Aids to Navigation (AtoN)
- Marine VHF Communications





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Key benefits of this technology include: fast time-to-market, low cost, low risk, small footprint and unsurpassed flexibility.

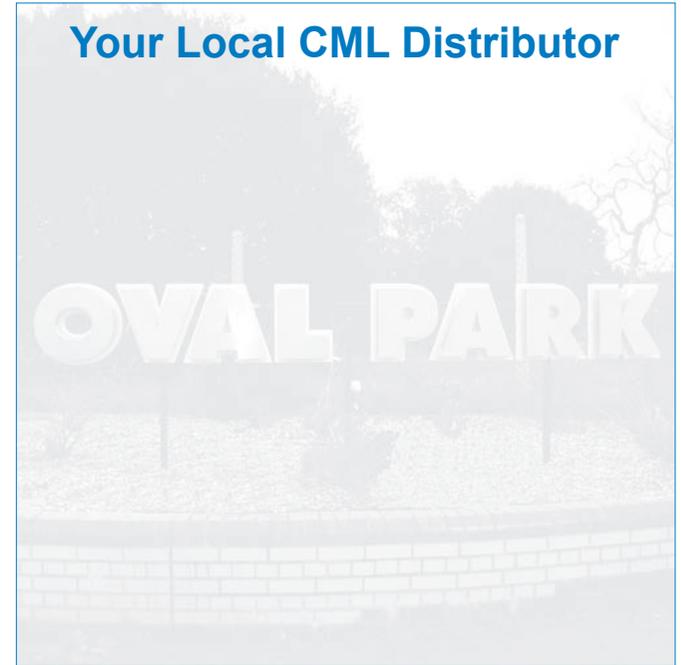
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As part of CML's extensive wireline portfolio, CML features the CMX850 Communications Controller IC.

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Hyperstone, a fabless semiconductor company and a member of the CML Plc Group, offers a wide range of microprocessor and microcontroller products based on unified RISC/DSP architecture.

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Focus Products

- E2 RISC/DSP Microcontroller
- hyNet XS and S Communication Controllers
- F4 and S6 Flash Memory Controllers
- Integrated Development Tools Available

