Chipsmall

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

uC53017 - EVM
➤ embedded voice module
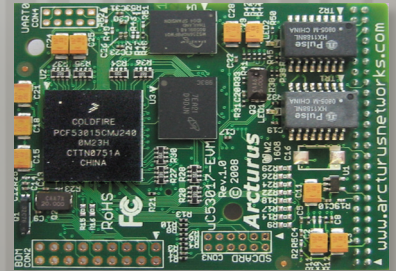
overview

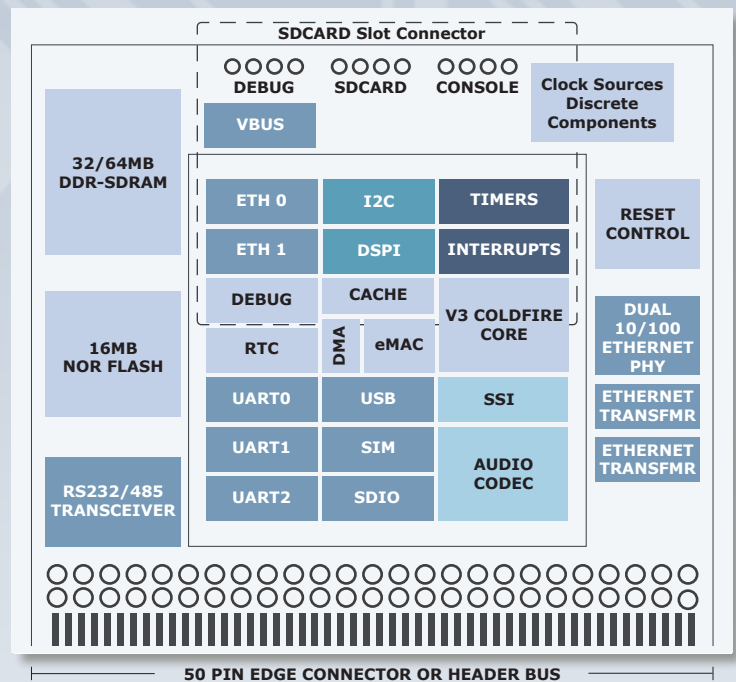The uC53017 is a highly integrated system level solution for the development of two way voice, broadcast audio and voice control systems. It is ideal for next generation digital applications or to replace circuit switched systems including; push-to-call systems, medical monitoring, intercom and paging equipment, building access or wireless devices. All system components are provided to help developer's create product without the necessity of becoming media, audio or signaling experts.

The uC53017 includes complete Voice and Management middleware and an open source uClinux BSP, eliminating the need to integrate multiple software components from various vendors. This hybrid combination of software provides complete voice support while retaining the ability to customize and recreate the system.

The module uses the powerful 240MHz Freescale® ColdFire® MCF53017 processor, specifically designed for voice applications. It includes an integrated on-chip voice codec, dual fast Ethernet as well as various I/O, peripheral and communication systems. The uC53017 module includes all required system memory, transceivers and terminations to enable most applications with only minimal external circuitry.

The development kit includes hardware, software and licenses for use. All components are integrated together to form a system-level solution with APIs, demos and example code. Middleware and voice processing subsystem components are bundled by Freescale with the MCF53017 processor, making it possible to create custom software and hardware applications, with no additional NRE or licensing charges.

The module integrates into end product with a simple 50 pin connector and is available in various quantities. It is FCC prequalified, RoHS compliant and suitable for harsh environments.

SDCARD Slot Connector

| DEBUG | SDCARD | CONSOLE | Clock Sources Discrete Components |

VBUS

32/64MB DDR-SDRAM	ETH 0	I2C	TIMERS	RESET CONTROL
	ETH 1	DSPI	INTERRUPTS	
	DEBUG	CACHE	V3 COLDFIRE CORE	DUAL 10/100 ETHERNET PHY
16MB NOR FLASH	RTC	DMA	eMAC	
	UART0	USB	SSI	ETHERNET TRANSFMR
	UART1	SIM	AUDIO CODEC	ETHERNET TRANSFMR
RS232/485 TRANSCEIVER	UART2	SDIO		

50 PIN EDGE CONNECTOR OR HEADER BUS

Digital Voice - Command Recognition - Controls

freescale™
Alliance Member

Arcturus
➤ empower embedded.

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features

- Freescale MCF53017 Microprocessor
- 240 MHz ColdFire v3 Core
- 16 Kbyte I/D-Cache
- 128 Kbyte Internal Processor SRAM
- 16Mbyte NOR Flash
- 32Mbyte DDR-SDRAM
- USB - Host/Device and VBus supply
- SDHC - Secure Digital Host Controller for SDCARD™ / SDIO
- SIM - Module Card Support
- 3 - Serial UARTS (max)
- RS232/RS485 Selectable Serial UART
- I2C - Peripheral Interface
- DSPI - DMA SPI
- SSI - High Speed Synchronous Serial interface
- RTC - Real-time Clock

- EMAC - Enhanced Hardware Multiple Accumulate
- Timer/Counters/Interrupts
- 20 GPIO (max)
- 8KHz Voice Codec with Mic Preamp support
- Direct Headset Compatible
- 2 - 10/100 Ethernet Ports
- Dual Ethernet Transceiver
- IEEE1588 Time Stamping In Hardware
- Auto MDI/MDX /PoE Compatible
- Reset Controller
- Temperature range -25 to +85ºC
- RoHS Complaint
- Compatible with Samtec MB1-150 or Header

OS and Tools
- uClinux 2.6.x, uClibc, GNU Tools, BDM support

middleware

Voice and Media Middleware

- Certified SIP Signalling Stack
- Feature Rich Telephony Application
- Run time Configurable Signalling Abstraction Layer
- SIP, RTP, STUN, NTP
- Analog Audio Subsystem
- Digitmap and Config Files
- Demo Applications
- Integrated with Management Middleware
- Simple Interactive Voice Response
- Play / Record Announcements
- Integration of Encore Voice Processing Subsystem
- Features and Software Modules

Telephony Features
- Configurable voCoder Preferences
- Caller-ID, Call Waiting, Cancel Call Wait
- Unattended/Attended Call Transfers
- Hotline, Speed dials, Push-to-Call
- Call Blocking Rules
- Auto Call Back on Busy
- Do Not Disturb
- Anonymous Calling / Call Rejection
- Call Hold and Retrieve, Held Call Ringback
- Intercom, Auto-answer/Hangup
- IVR - Announce IP address / Call Return

API Module
- Simple Command Based Control
- Volume and Gain Controls
- Call Progress Messages
- Call ID messages
- Status Queries and Messages
- Reference Application for Easy Integration

Broadcast and Mass Notification Module
- Multicast RTP Support
- Up to 99 Configurable Broadcast Groups
- Configurable permissions per group
- Definable command Packet port/address
- Definable Caller-ID and Caller Name
- Definable Broadcast Priorities
- Definable voCoder Payload

- Definable Answer Settings
- Configurable Alert Tone Generation
- Keep alive, Late Arrival and Termination
- Config file for Advanced Settings
- Co-existence with other SIP Elements

Encore Voice Processing Subsystem
- G.711a, G.711u, G.729, iLBC
- AEC (Acoustic Echo Cancel)
- DTMF Detect and Generate
- Call Progress Tones

Management Middleware
- Core Middleware Engine
- Management Database System
- API, Tools and Software Modules Listed Below

Bootloader Module
- Flash Support, Partitioning, Wear Leveling
- Persistent Object and Database Support
- Firmware Failover Framework
- Definable Serial Port and Boot Parameters
- Command Shell
- TFTP server
- Kernel API

WebUI Module
- Complete Web Interface for Configuration
- SSL v2 and v3 Cryptography Support (https)
- Login Authentication
- Post-parsing CGI Support
- Auto Log Out on Idle
- Deny Simultaneous Users
- Auto Redirect to Secure Port

Remote Provisioning Module
- End-point Initiated Remote Management
- Https Transport
- SSL v2 and v3 Cryptography Support
- Host Webserver Authentication
- Simple Script Configuration File
- Automated with CRON Process
- Configurable with Unique Credentials
- Compatible with Post-parsed Webservers for
- Dynamic File Creation
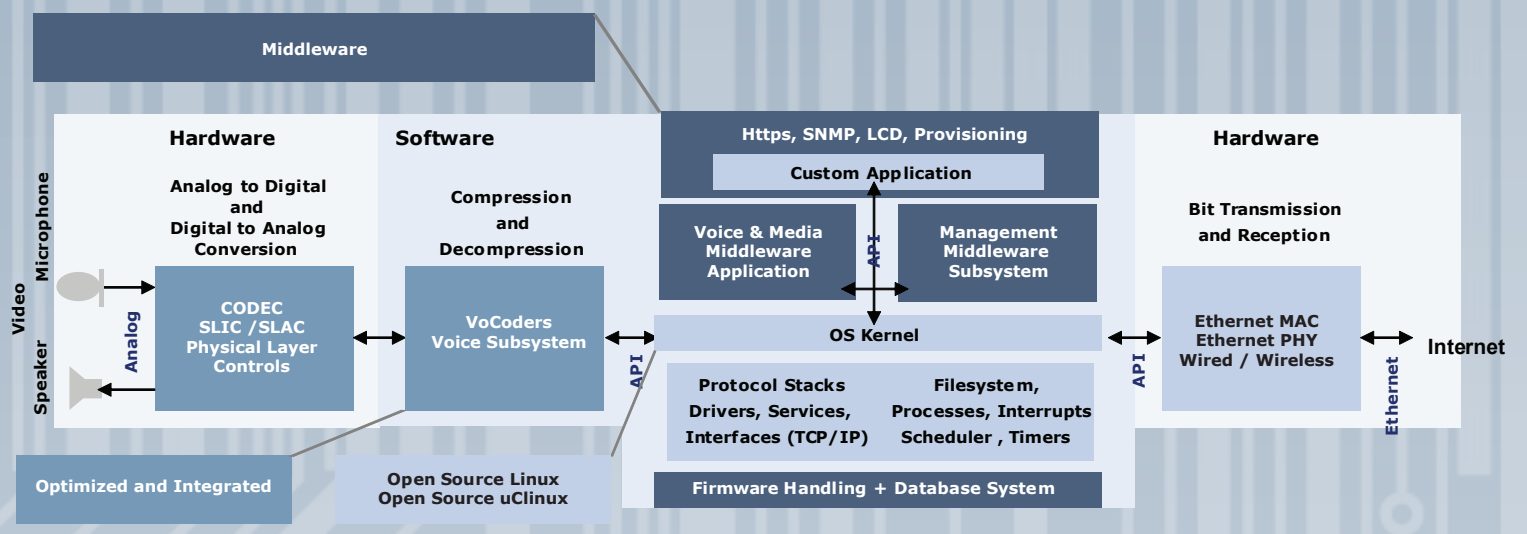
www.arcturusnetworks.com

Arcturus
➤ uC53017 - EVM

- VOICE, COMMAND RECOGNITION, CONTROLS
- NO PROHIBITIVE LICENSING OR NRE
- BUNDLED, SYSTEM LEVEL SOLUTION
- MODULES AVAILABLE OFF-THE-SHELF
- OPEN SOURCE uCLINUX™ DISTRIBUTION

![NXP]

software

Middleware

Hardware	Software		Hardware
Analog to Digital and Digital to Analog Conversion	**Compression and Decompression**	**Https, SNMP, LCD, Provisioning**	**Bit Transmission and Reception**

Video
Microphone

Speaker

Analog

CODEC SLIC /SLAC Physical Layer Controls

VoCoders Voice Subsystem

Custom Application

Voice & Media Middleware Application

Management Middleware Subsystem

API

API

OS Kernel

Ethernet MAC Ethernet PHY Wired / Wireless

Internet

Ethernet

Protocol Stacks Drivers, Services, Interfaces (TCP/IP)

Filesystem, Processes, Interrupts Scheduler , Timers

Firmware Handling + Database System

Optimized and Integrated

Open Source Linux Open Source uClinux
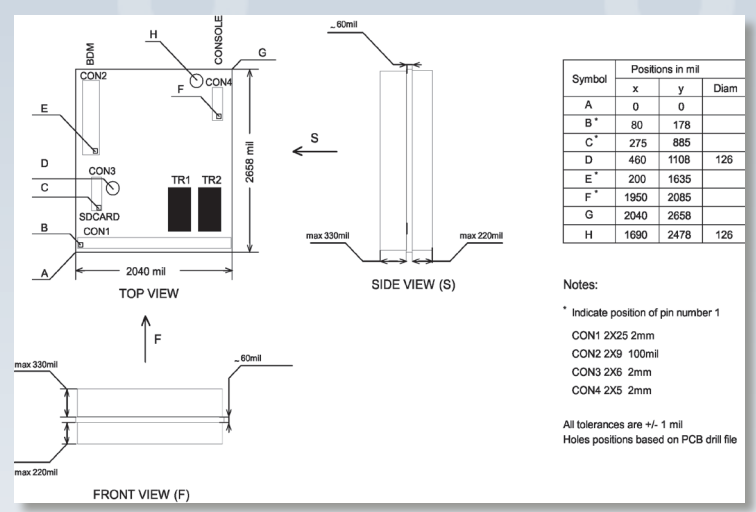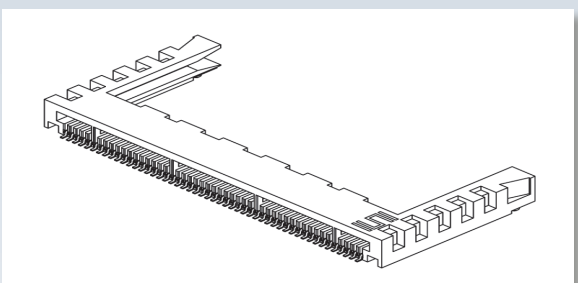
API

API

development kits

Kit Includes:

- uC53017EVM Module
- Host Board, Cable kit, Power Supply, Headset
- Installation Support
- Access to Dedicated Online Support Site
  - Documentation, Schematics
  - Software, Demo's
  - How-To's, Forums, FAQ's
- License to use Middleware
- License to use Voice Processing Subsystem
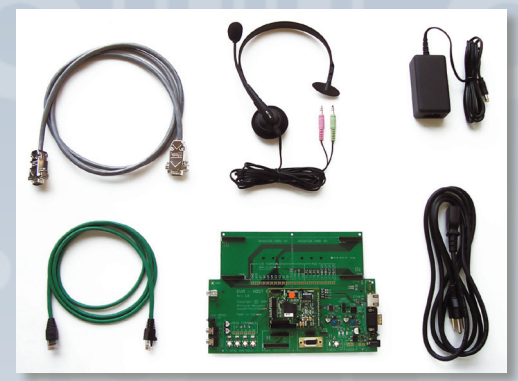
physical

Edge / Mating Connector Options

- SAMTEC® MB1-150 Socket Connector
  - Gas Tight / CAD Object Available
- 50 Pin Header Connector
  - No host board required

Symbol	Positions in mil		
	x	y	Diam
A	0	0	
B *	80	178	
C *	275	885	
D	460	1108	126
E *	200	1635	
F *	1950	2085	
G	2040	2658	
H	1690	2478	126

Notes:

* Indicate position of pin number 1

CON1 2X25 2mm
CON2 2X9 100mil
CON3 2X6 2mm
CON4 2X5 2mm

All tolerances are +/- 1 mil
Holes positions based on PCB drill file

Arcturus
➤ uC53017 - EVM

- **Voice, Command Recognition, Controls**
- **No Prohibitive Licensing or NRE**
- **Bundled, System Level Solution**
- **Modules Available Off-the-Shelf**
- **Open Source uClinux™ Distribution**

bus description

| PIN | SIGNAL | ALT FUNCTIONS | | DIRECTION (signal) | DESCRIPTION | |
		MCF53017 name	Schematic Name		Signal	ALT Functions
1	+3.3V	-	-	-	Power	-
2	+3.3V	-	-	-	Power	-
3	USB_P	USBO_DP /USBH_DP	USBO_DPLS / USBH_PLS	I/O	USB	USB OTG/USB HOST
4	USB_M	USBO_DM /SBH_DM	USBO_DM / USBH_DMNS	I/O	USB	USB OTG/USB HOST
5	VBUS	-	-	O	USB VBUS Out	-
6	+5V	-	-	-	+5V in for USB VBUS	-
7	GND	-	-	-	Ground	-
8	GND	-	-	-	Ground	-
9	A1_OUT	AMP_HPOUT/AMP_HSN/AMP_SPKRN/SSI_FS	HP_OUT/HDST_N/SPKR_N/SSI_FS	O	Audio Out – Left	Headphone output/Headset output/Speaker output/Serial frame sync
10	A2_OUT	AMP_HPOUT/AMP_HSP/AMP_SPKRP/SSI_TXD	HP_OUT/HDST_P/SPKR_P/SSI_TXD	O	Audio Out – Right	Headphone output/Headset output/Speaker output/Serial transmit data
11	A1_IN	AMP_MICP/SSI_RX	MIC_P/SSI_RX	I	Audio In – Mic	Microphone input/Serial receive data
12	A2_IN	AMP_MICN/SSI_BCLK	MIC_N/SSI_BCLK	I	Audio In – Mic	Microphone input/Serial bit clock
13	#MR	-	-	I	Master Reset In	-
14	I2C_SCL	PFECI2C1/U2RXD/RMII1_MDC	U2RXD / RMII1_MDC	I/O	I2C Clock	GPIO/UART2 RXD/RMII1 management data clock
15	I2C_SDA	PFECI2C0/U2TXD/RMII1_MDIO	U2TXD / RMII1_MDIO	I/O	I2C Data	GPIO/UART2 TXD/RMII1 management data I/O
16	#RSTOUT	-	-	O	Reset Out	-
17	QSPI_CS0	DSPI_PCS0/#DSPI_SS/PDSPI3/#U2RTS	DSPI_PCS0/#DSPI_SS/GPIO/#U2RTS	O	DSPI Chip Select 0	DSPI Slave select/GPIO/UART2 #RTS
18	QSPI_CS1	DSPI_PCS1/PDSPI4SSI_MCLK/SIM1_CLK	GPIO/#SBF_CS/SSI_MCLK/SIM_CLK	O	DSPI Chip Select 1	GPIO/SSI master clock/SIM1 clock
19	QSPI_CS2		SSI_MCLK /GPIO/SIM_CLK/RTC_VSD	O	DSPI Chip Select 2	Serial master clock/ GPIO/Smart card interface/Real Time clock
20	QSPI_DIN	DSPI_SIN/ SBF_DI/ U2_RXD	GPIO / U2RXD	I	DSPI Data In	GPIO/UART2 RXD
21	QSPI_CLK	DSPI_SCK/ PDSPI2/	GPIO / #U2_CTS	I/O	DSPI Clock	GPIO/UART2 #CTS
22	QSPI_DOUT	DSPI_SOUT/PDSPI0/U2_TXD	GPIO / U2_TXD	O	DSPI Data Out	GPIO/UART2 TXD
23	U1RXD	SIM1_VEN/PSIM14/SSI_RXD	SIM1_VEN/GPIO/SSI_RXD	I	UART 1 Receive	Smart Card Interface/GPIO/Serial Receive
24	U1TXD	SIM1_DATA/PSIM14SSI_TXD	SIM1_DATA/GPIO/SSI_TXD	O	UART 1 Transmit	Smart Card Interface/GPIO/Serial Transmit
25	U1RTS	SIM1_RTS/PSIM12/SSI_FS	SIM1_RTS/GPIO/SSI_FS	O	UART 1 Request To Send	Smart Card Interface/GPIO/Serial Frame Sync
26	U1CTS	SIM1_PD/PSIM11/SSI_BCLK	SIM1_PD/GPIO/SSI_BCLK	I	UART 1 Clear To Send	Smart Card Interface/GPIO/Serial bit clock
27	U2TXD	PUART5	GPIO	O	UART 2 Transmit	GPIO
28	U2RXD	PUART4	GPIO	I	UART 2 Receive	GPIO
29	#IRQ1	#IRQ01/PIRQ01/#DREQ1	#IRQ1/GPIO/#DREQ1	I	External Interrupt	GPIO/DMA
30	#IRQ2	T2IN/PTIMER2/T2OUT/#IRQ02	T2IN/GPIO/T2OUT	I	External Interrupt	TIMER2/GPIO
31	#IRQ3	T3IN/PTIMER3/T3OUT/#IRQ03	T3IN/GPIO/T3OUT	I	External Interrupt	TIMER3/GPIO
32	#IRQ6	#IRQ06/PIRQ06	GPIO	I	External interrupt	GPIO
33	T0_IN/OUT	PTIMER0/CODEC_ALTCLK	GPIO/ CODEC_ALTCLK	I/O	TIMER0 IN/OUT	GPIO/Codec clock in
34	T1_IN/OUT	PTIMER1/#DACK1	GPIO/#DACK1	I/O	TIMER1 IN/OUT	GPIO/DMA ACK
35	PHY1_LED	-	-	O	Ethernet Link / Activity	-
36	PHY2_LED	-	-	O	Ethernet Link / Activity	-
37	N/C	-	-	-	Not Connected	-
38	T1_TP	-	-	O	Ethernet TX+	-
39	T1_TC	-	-	-	Ethernet Center	-
40	T1_TN	-	-	O	Ethernet TX-	-
41	T1_RP	-	-	I	Ethernet RX+	-
42	T1_RC	-	-	-	Ethernet Center	-
43	T1_RN	-	-	I	Ethernet RX-	-
44	N/C	-	-	-	Not Connected	-
45	T2_TP	-	-	O	Ethernet TX+	-
46	T2_TC	-	-	-	Ethernet Center	-
47	T2_TN	-	-	O	Ethernet TX-	-
48	T2_RP	-	-	I	Ethernet RX+	-
49	T2_RC	-	-	-	Ethernet Center	-
50	T2_RN	-	-	I	Ethernet RX-	-

ratings & parts

Voltage	Module	Condition
3.3VDC	460mA	Non Power Save
3.3VDC	Not Yet Rated	Power Save Mode/Idle
3.3VDC	490mA	Theoretical Max.

Part Number	Description
uC53017-Dev Kit	uC53017-EVM Development Kit
uC53017S50-16EE32UVMSD240-XR	uC53017-EVM Module (superset)

Arcturus
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