BLUE TECHNIX

Blackfin Products

...maximum performance at minimum space

Core Modules

	TCM-BF518	CM-BF527	CM-BF533
CPU	Analog Devices BF518 @ 400MHz	Analog Devices BF527 @ 600MHz	Analog Devices BF533 @ 600MHz
RAM	32MByte SDRAM up to 133MHz	32MByte SDRAM up to 133MHz	32MByte SDRAM up to 133MHz
FLASH	2MByte up to 8MByte	8MByte	2MByte
INTERFACES — CAN	-	-	-
INTERFACES — ETHERNET	1x10/100 MBit Ethernet MII/RMII	1x10/100 MBit Ethernet	-
INTERFACES — PPI	1	1	1
INTERFACES — SD/SDIO	-	-	-
INTERFACES — SPI	2	1	1
INTERFACES — SPORT	2	2	2
INTERFACES — TWI/I²C	1	1	emulation by GPIO
INTERFACES — UART	2	2	1
INTERFACES — USB 2.0	-	1 (OTG)	-
ADDITIONAL FEATURES	Single 3.3V supply voltage On-board core voltage regulator Low voltage reset circuit Commercial Temp. Range	Single 3.3V supply voltage On-board core voltage regulator Low voltage reset circuit Commercial Temp. Range	Single 3.3V supply voltage On-board core voltage regulator Low voltage reset circuit Commercial / Industrial Temp. Range
VERSIONS	Connector	Connector	Connector
DIMENSIONS	28x28mm	31x36mm	31x36mm

	CM-BF537	CM-BF537U	TCM-BF537
CPU	Analog Devices BF537 @ 600MHz	Analog Devices BF537 @ 600MHz	Analog Devices BF537 @ 500MHz
RAM	32MByte SDRAM up to 133MHz	32MByte SDRAM up to 133MHz	32MByte SDRAM up to 133MHz
FLASH	4MByte up to 8MByte	4MByte	8MByte
INTERFACES — CAN	1	1	1
INTERFACES — ETHERNET	1x10/100 MBit Ethernet	-	1x10/100 MBit Ethernet MII/RMII
INTERFACES — PPI	1	1	1
INTERFACES — SD/SDIO	-	-	-
INTERFACES — SPI	1	1	1
INTERFACES — SPORT	2	2	2
INTERFACES — TWI/I²C	1	1	1
INTERFACES — UART	2	2	2
INTERFACES — USB 2.0	-	1 (Device)	-
ADDITIONAL FEATURES	Single 3.3V supply voltage On-board core voltage regulator Low voltage reset circuit Commercial / Industrial Temp. Range	Single 3.3V supply voltage On-board core voltage regulator Low voltage reset circuit Commercial Temp. Range	Single 3.3V supply voltage On-board core voltage regulator Low voltage reset circuit Industrial Temp. Range
VERSIONS	Connector	Connector	Connector, Ball Grid Array, Border Pad
DIMENSIONS	31x36mm	31x36mm	28x28mm

Core Modules

NEW

	CM-BF548	CM-BF561	eCM-BF561
CPU	Analog Devices BF548 @ 533MHz	Analog Devices BF561 @ 2x600MHz	Analog Devices BF561 @ 2x600MHz
RAM	64MByte DDR SDRAM up to 266MHz	64MByte SDRAM up to 133MHz	128MByte SDRAM up to 133MHz
FLASH	8MByte	8MByte	32MByte
INTERFACES — CAN	2	-	-
INTERFACES — PPI	3 (EPPI)	2	2
INTERFACES — SD/SDIO	1	-	-
INTERFACES — SPI	3	1	1
INTERFACES — SPORT	4	2	1
INTERFACES — TWI/I²C	2	emulation by GPIO	emulated by GPIO
INTERFACES — UART	4	1	1
INTERFACES — USB 2.0	1 (OTG)	-	-
ADDITIONAL FEATURES	Single 3.3V supply voltage On-board core voltage regulator Low voltage reset circuit NAND Flash Interface Keypad Interface Industrial Temp. Range	Single 3.3V supply voltage On-board core voltage regulator Low voltage reset circuit Dual Core Processor Commercial Temp. Range	Single 3.3V supply voltage On-Board core voltage regulator Low voltage reset circuit Dual Core Processor Commercial / Industrial Temp. Range
VERSIONS	Connector	Connector	Connector
DIMENSIONS	31x41mm	31x36mm	44x33mm

Development Boards

NEW

	DEV-BF5xxDA-Lite	EVAL-BF5xx	eDEV-BF5xx
COMPATIBLE WITH*	TCM-BF518 CM-BF537U CM-BF527 TCM-BF537 CM-BF533 CM-BF561 CM-BF537E	TCM-BF518 CM-BF537U CM-BF527 TCM-BF537 CM-BF533 CM-BF561 CM-BF537E	eCM-BF561
ON-BOARD DEBUG AGENT	✓	-	Connector for ADI-SADA
USB TO UART CONVERTER	✓	✓	✓
CAN TRANSCEIVER	CM-BF537E, CM-BF537U, TCM-BF537	CM-BF537E, CM-BF537U, TCM-BF537	-
ETHERNET CONNECTOR	CM-BF527, CM-BF537E	CM-BF527, CM-BF537E	✓
USB 2.0 OTG CONNECTOR	CM-BF527, CM-BF537U	CM-BF527, CM-BF537U	✓
SD CARD SOCKET	✓	✓	✓
TFT CONNECTOR	-	-	EDT G-TFT Family Concept (3,5" - 7")
ADDITIONAL FEATURES	JTAG Interface Connector	JTAG Interface Connector	Connector for camera CM pins on solder pads
DIMENSIONS	75x75mm	75x75mm	120x120mm

*Further CMs are supported by adapters

	DEV-BF548DA-Lite	DEV-BF548-Lite	CDEV-BF5xx NEW
COMPATIBLE WITH*	CM-BF548	CM-BF548	eCM-BF561 *Further CMs are supported by adapters
ON-BOARD DEBUG AGENT	✓	–	–
USB TO UART CONVERTER	✓	✓	✓
CAN TRANSCEIVER	✓	✓	✓
ETHERNET CONNECTOR	✓	✓	✓
USB 2.0 OTG CONNECTOR	✓	✓	✓
SD CARD SOCKET	✓	✓	Micro SD Card socket
ADDITIONAL FEATURES	JTAG Interface Connector	JTAG Interface Connector	BLT-ISM-Connector ISM-MT9M024 Support
DIMENSIONS	100x100mm	100x100mm	80x50mm

Extender Boards

	EXT-BF5xx-ADIS16350	EXT-BF5xx-AD-DA	EXT-BF5xx-AUDIO

FEATURES	Stackable Expansion Board
	SPI interface
	Tri-axis gyroscope
	Tri-axis accelerometer
	Temperature sensor
	Auxiliary digital IOs
	Auxiliary 12-bit DAC and ADC
		Stackable Expansion Board
		Low noise power supply
		Screw connectors for each terminal
		ADC Converter:
		  - AD7266
		  - 12bit, 2MSPS
		  - 12 Channels single ended
		   or 6 Channels differential
		  - 0-5 Volt input range
		  - 2x Analog input filters
		DAC Converter:
		  - AD5415, serial interface,12bit
		  - 10 MHz Multiplying Bandwidth
		  - AD5405 parallel interface
			Stackable Expansion Board
			AD1836 Audio Codec
			  - 24-Bit, 96kHz Sigma-Delta Codec
			2x Stereo Audio Inputs
			3x Stereo Audio Outputs

DEVELOPMENT PLATFORM	DEV-BF5xxDA-Lite, EVAL-BF5xx	DEV-BF5xxDA-Lite, EVAL-BF5xx, DEV-BF548DA-Lite, DEV-BF548-Lite	DEV-BF5xxDA-Lite, EVAL-BF5xx
CORE MODULES	CM-BF527, CM-BF533, CM-BF537E, CM-BF537U, TCM-BF537, CM-BF548, CM-BF561	TCM-BF518, CM-BF527, CM-BF533, CM-BF537E,CM-BF537U, TCM-BF537, CM-BF548,CM-BF561	CM-BF527, CM-BF533, CM-BF537E, CM-BF537U, TCM-BF537, CM-BF561
DIMENSIONS	75x75mm	75x75mm	75x75mm

	EXT-BF5xx-CAM	EXT-BF5xx-EXP-TR	EXT-BF5xx-USB-ETH2

FEATURES	Stackable Expansion Board
	2x Camera connectors:
	  - Camera OV2640 (1600x1200px)
	  - 2nd camera only on BF561
	1x TFT Display connector:
	  - Supports Hitachi 3,5″ Displays
	1x Touchscreen controller
		Stackable Expansion Board
		All 120 pins of the connectors are available on solder pads
		Shiftable terminating resistors on A/D bus
			Stackable Expansion Board
			Ethernet Physical Transceiver:
			  - Micrel KS8721 for TCM-BF537
			  - 1x RJ45 connector
			Ethernet Controller:
			  - SMSC LAN9218 for CM-BF533,
			   CM-BF561
			  - 1x RJ45 connector
			USB2.0 Device:
			  - NET2272
			  - 1x USB2.0 connector

DEVELOPMENT PLATFORM	DEV-BF5xxDA-Lite, EVAL-BF5xx, DEV-BF548DA-Lite, DEV-BF548-Lite	DEV-BF5xxDA-Lite, EVAL-BF5xx	DEV-BF5xxDA-Lite, EVAL-BF5xx
CORE MODULES	TCM-BF518, CM-BF527, CM-BF533, CM-BF537E, CM-BF537U, TCM-BF537, CM-BF548, CM-BF561	TCM-BF518, CM-BF527, CM-BF533, CM-BF537E, CM-BF537U, TCM-BF537, CM-BF561	CM-BF527, CM-BF533, CM-BF537E, CM-BF537U, TCM-BF537, CM-BF561
DIMENSIONS	75x75mm	75x75mm	75x75mm

	EXT-BF5xx-VIDEO	EXT-BF518-ETH	EXT-BF548-EXP

FEATURES	Stackable Expansion Board
	ADV7183A Video Decoder:
	  - 3x ADCs with 10bit resolution
	  - 54MHz ADC speed
	ADV7171 Video Encoder:
	  - 4x DACs with 10bit resolution
		Stackable Expansion Board
		Ethernet Physical Transceiver:
		  - Micrel KS8041for TCM-BF518
		  - 1x RJ45 Connector
			Stackable Expansion Board
			All 200 pins of the connectors are available on solder pads
			1x RS232 serial level shifter
			1x Serial Sub-D9 plug

DEVELOPMENT PLATFORM	DEV-BF5xxDA-Lite, EVAL-BF5xx	DEV-BF5xxDA-Lite, EVAL-BF5xx	DEV-BF548-Lite, DEV-BF548DA-Lite
CORE MODULES	CM-BF527, CM-BF533, CM-BF537E, CM-BF537U, TCM-BF537, CM-BF561	TCM-BF518	CM-BF548
DIMENSIONS	75x75mm	75x75mm	100x100mm

NEW

NEW

Video surveillance, machine vision, object counting, scientific imaging and other industrial and commercial applications are receiving much attention because of its safety, security and automation potential. Bluetechnix latest product a Camera-Development-Kit (CDK) is especially designed for your future embedded smart camera systems. The kit consists of a development board CDEV-BF5xx, a powerful Blackfin® based Core Module eCM-BF561 and an Image Sensor Module ISM-MT9M024.
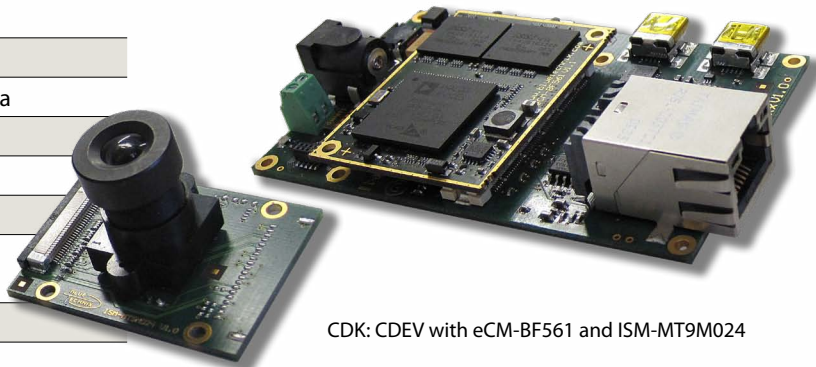
Based on Bluetechnix' long experience in industrial and commercial embedded systems design, this kit is suited to the market requirements to decrease time-to-market of your industrial applications. The form factor of CDEV-BF5xx allows an easy integration of the kit into OEM products. Dedicated interfaces such as Ethernet, CAN, USB2.0 and a micro SD-Card slot turn the CDEV-BF5xx into a full-featured development platform for most industrial and commercial camera applications.

Core Module eCM-BF561

The Core Module eCM-BF561 is optimized for performance and parallel data processing. It is based on the high performance ADSP-BF561 from Analog Devices. The eCM-BF561 is designed for commercial applications (commercial temperature range). It addresses 128MByte SDRAM via its 32bit wide SDRAM bus and has an onboard NOR-flash of 32MByte.

PROCESSOR	ADSP-BF561SKBCZ-6A Blackfin® embedded processor (Dual Core)
CLOCK	Up to 600MHz
L1 CACHE (per core)	16kByte instruction and 32kByte data
L2 CACHE (shared)	128kByte
RAM	128MByte SDRAM up to 133MHz
FLASH	32MByte NOR
TEMPERATURE RANGE*	Commercial (0°C to +70°C) or Industrial (-40°C to +85°C)
DIMENSION	44x33mm
ADDITIONAL	On-Board core voltage regulator
	Low voltage reset circuit

*Industrial on request only (-40° to 85°C)

CDK: CDEV with eCM-BF561 and ISM-MT9M024

Image Sensor Module ISM-MT9M024

The MT9M024 CMOS digital image sensor from Aptina is a completely integrated, ultra-low power, cost effective camera system (SoC) which is offering a High-Dynamic-Range and a linear capturing mode.

Optical format	1/3-inch (6mm)	**Dynamic range**	>115dB
Active pixels	1280H x 960V	**Frame rate**	60 fps at 1280 x 720p
Imaging Area	3.54mm (H) x 2.69mm (V)		45 fps at 1280 x 960
Resolution	1.2Mp	**Automotive qualified**	AEC-Q100, Grade 2

Applications

- » Video surveillance
- » Machine vision
- » Object counting
- » Scientific imaging
- » Industrial and commercial applications

KIT Content

- » CDEV-BF5xx Blackfin Camera Development Board
- » eCM-BF561-C-C-Q25S128F32 (eCM-BF561)
- » Image Sensor Module ISM-MT9M024
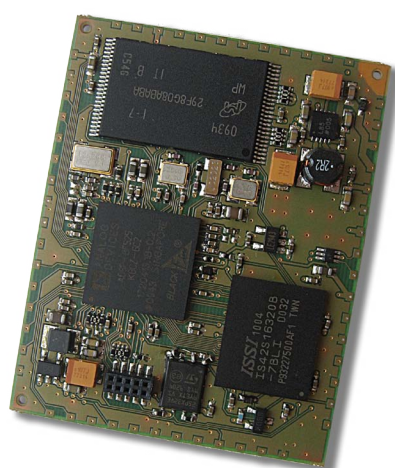- » DC power supply
- » USB device cable

Audio processing, multimedia applications, Voice-over-IP, portable media players and other audio related applications are just some possible applications of Bluetechnix' latest Audio-Development-Kit (ADK). The ADK is especially designed for your future embedded audio applications. The kit consists of a development board ADEV-BF52xC and a powerful Blackfin® based Core Module ACM-BF525C.

Based on Bluetechnix' long experience in industrial and commercial embedded systems design, this kit decreases the time-to-market of your embedded audio applications. The form factor of the ACM-BF525C allows an easy integration of the module into OEM products. Dedicated interfaces such as USB2.0, Line In/Out, headphone out (HP) and an onboard silicon microphone turn the ADEV-BF52xC into a full-featured development platform for most commercial embedded audio applications.

Core Module ACM-BF525C

The Core Module ACM-BF525C is optimized for audio applications and performance. It is based on the high performance ADSP-BF525C from Analog Devices. The ACM-BF525C is designed for commercial applications (commercial temperature range). It addresses 64MByte SDRAM via its 16bit wide SDRAM bus, has an onboard NOR-flash of 4MByte and a NAND-flash with 1024MByte.

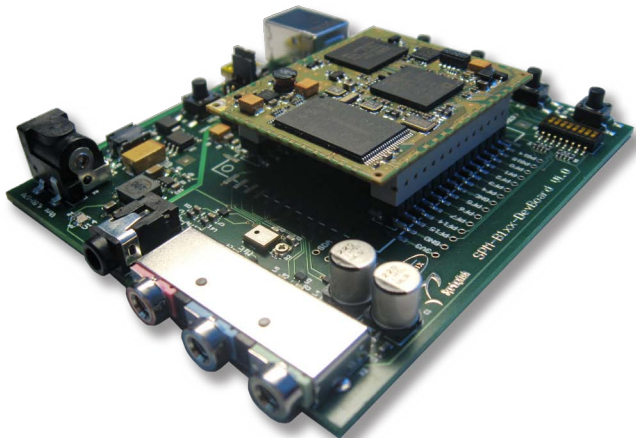|	
PROZESSOR	ADSP-BF525C Blackfin® DSP
CLOCK	600MHz
LOCKBOX SECURE TECHNOLOGY	✓
I²C / SPI / UART / SPORT	1 / 1 / 1 / 1
USB2.0 OTG	1
INTEGRATED AUDIO CODEC	Stereo, 24-bit ADCs and DACs
RAM	64MByte SDRAM
FLASH	4MByte NOR und 1024MByte NAND
TEMPERATURE RANGE	Commercial (0°C to 70°C)
ADDITIONAL FEATURES	Mic., Line In / Out and HP interface
	On-Board core voltage regulator
	Low voltage reset circuit
DIMENSIONS	38x48mm

ACM-BF525C

Applications

- » Audio processing
- » Mulimedia applications
- » Voice-over-IP applications
- » Portable media players

KIT Content

- » ADEV-BF52xC Blackfin Audio Development Board
- » ACM-BF525C-C-C-Q25S64F4N1024
- » DC power supply
- » USB device cable

ADK: ADEV-BF52xC with ACM-BF5252C

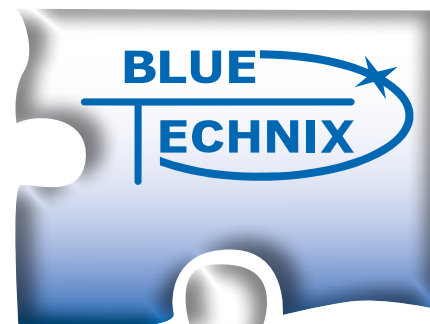# BLUETECHNIX - YOUR Embedded Systems Development Partner

Bluetechnix, established in September 2004, with headquarters in Vienna, is a spin-off of the Vienna University of Technology. Bluetechnix' core business focuses on design and development of embedded systems. Bluetechnix has many years of experience in individual development services of customers' designs. Additionally we have gained long experience in low-level software development for embedded systems. Client satisfaction, innovation and quality of products and services have been the cornerstones of Bluetechnix' success. Our motivated employees know what it takes to deliver services that exceed customers' expectations. Therefore, we are continuously reinventing ourselves and use our technological expertise to develop cutting-edge technology for industrial, transport, medical and consumer applications.

Bluetechnix core competencies

» **Hard- & Software development services**
» **Efficient solutions for customers' requirements**
» **Device driver, firmware and application development**
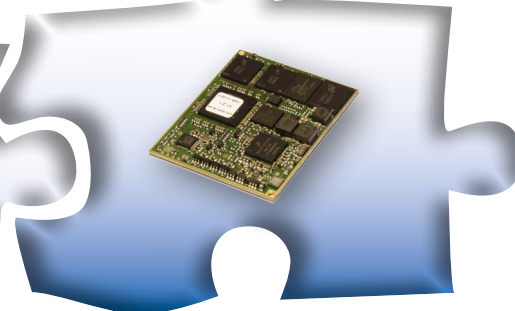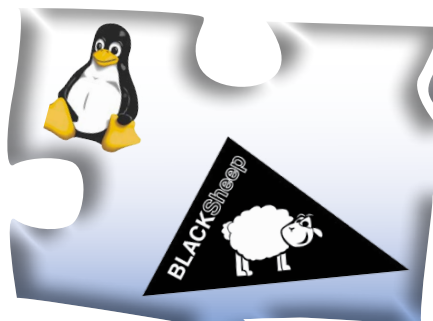
Benefit of Bluetechnix' services

We have 750 customers worldwide, who are satisfied with our hard- & software design solutions.
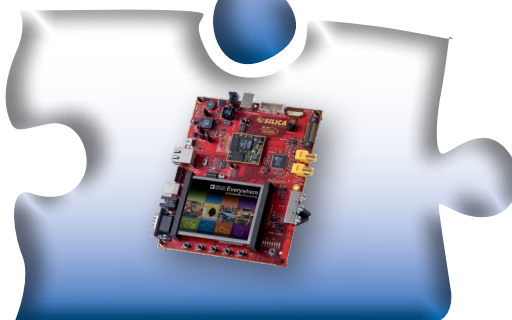
Design Services

Software Development
Embedded Linux,
BLACKSheep® OS,
Custom Software

Hardware Development

Product