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.

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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

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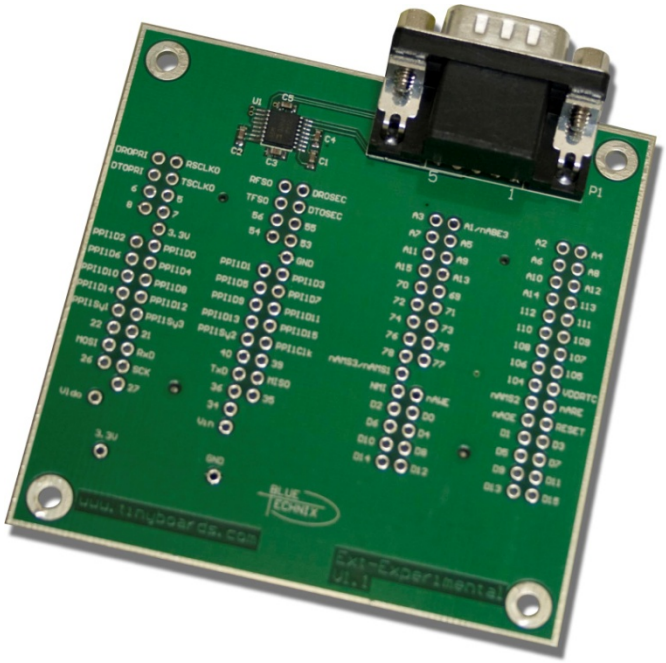
BLUE TECHNIX



# Hardware User Manual

## EXT-BF5xx-EXP V1.x

*...maximum performance at minimum space*

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# Table of Contents

The information herein is given to describe certain components and shall not be considered as a guarantee of characteristics.
Terms of delivery and rights of technical change reserved.

We hereby disclaim any warranties, including but not limited to warranties of non-infringement, regarding circuits, descriptions and charts stated herein.

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Information

For further information on technology, delivery terms and conditions and prices please contact Bluetechnix (http://www.bluetechnix.com).

Warning

Due to technical requirements components may contain dangerous substances.

The Core Modules and development systems contain ESD (electrostatic discharge) sensitive devices. Electro-static charges readily accumulate on the human body and equipment and can discharge without detection. Permanent damage may occur on devices subjected to high-energy discharges. Proper ESD precautions are recommended to avoid performance degradation or loss of functionality. Unused Core Modules and Development Boards should be stored in the protective shipping

# BLACKFIN Products

**Core Modules:**

| | |
|---|---|
| TCM-BF518: | The new Core Module CM-BF518 is powered by Analog Devices' single core ADSP-BF518 processor; up to 400MHz, 32MB SDRAM, up to 8MB flash. The 2x60 pin expansion connectors are backwards compatible with other Core Modules. |
| CM-BF527: | The new Blackfin Processor Module is powered by Analog Devices' single core ADSP-BF527 processor; key features are USB OTG 2.0 and Ethernet. The 2x60 pin expansion connectors are backwards compatible with other Core Modules. |
| CM-BF533: | Blackfin Processor Module powered by Analog Devices' single core ADSP-BF533 processor; up to 600MHz, 32MB SDRAM, 2MB flash, 2x60 pin expansion connectors and a size of 36.5x31.5mm. |
| TCM-BF537: | Blackfin Processor Module powered by Analog Devices' single core ADSP-BF537 processor; up to 500MHz, 32MB SDRAM, 8MB flash, a size of 28x28mm, 2x60 pin expansion connectors, Ball Grid Array or Border Pads for reflow soldering, industrial temperature range -40°C to +85°C. |
| CM-BF537E: | Blackfin Processor Module powered by Analog Devices' single core ADSP-BF537 processor; up to 600MHz, 32MB SDRAM, 4MB flash, integrated TP10/100 Ethernet physical transceiver, 2x60 pin expansion connectors and a size of 36.5x31.5mm. |
| CM-BF537U: | Blackfin Processor Module powered by Analog Devices' single core ADSP-BF537 processor; up to 600MHz, 32MB SDRAM, 4MB flash, integrated USB 2.0 Device, 2x60 pin expansion connectors and a size of 36.5x31.5mm. |
| CM-BF548: | The new Blackfin Processor Module is powered by Analog Devices' single core ADSP-BF548 processor; key features are 64MB DDR SD-RAM 2x100 pin expansion connectors. |
| CM-BF561: | Blackfin Processor Module powered by Analog Devices' dual core ADSP-BF561 processor; up to 2x 600MHz, 64MB SDRAM, 8MB flash, 2x60 pin expansion connectors and a size of 36.5x31.5mm. |
| eCM-BF561: | Blackfin Processor Module powered by Analog Devices' dual core ADSP-BF561 processor; up to 2x 600MHz, 128MB SDRAM, 8MB flash, 2x100 pin expansion connectors and a size of 44x33mm. |

**Development Boards:**

| | |
|---|---|
| EVAL-BF5xx: | Low cost Blackfin processor Evaluation Board with one socket for any Bluetechnix Blackfin Core Module. Additional interfaces are available, e.g. an SD-Card. |
| DEV-BF5xxDA-Lite: | Get ready to program and debug Bluetechnix Core Modules with this tiny development platform including an USB-Based Debug Agent. The DEV-BF5xxDA-Lite is a low cost starter development system including a VDSP++ Evaluation Software License. |
| DEV-BF548-Lite: | Low-cost development board with one socket for Bluetechnix CM-BF548 Core Module. Additional interfaces are available, e.g. an SD-Card, USB and Ethernet. |
| DEV-BF548DA-Lite: | Get ready to program and debug Bluetechnix CM-BF548 Core Module with this tiny development platform including an USB-Based Debug Agent. The DEV-BF548DA-Lite is a low-cost starter development system including a VDSP++ Evaluation Software License. |
| EXT-Boards: | The following Extender Boards are available: EXT-BF5xx-AUDIO, EXT-BF5xx-VIDEO, EXT-BF5xx-CAM, EXT-BF5xx-EXP-TR, EXT-BF5xx-USB-ETH2, EXT-BF5xx-AD/DA, EXT-BF548-EXP and EXT-BF518-ETH. Furthermore, we offer the development of customized extender boards for our customers. |

**Software Support:**

| | |
|---|---|
| BLACKSheep: | The BLACKSheep VDK is a multithreaded framework for the Blackfin processor family from Analog Devices that includes driver support for a variety of hardware extensions. It is based on the real-time VDK kernel included within the VDSP++ development environment. |
| LabVIEW: | LabVIEW embedded support for Bluetechnix Core Modules is done by Schmid-Engineering AG: http://www.schmid-engineering.ch |
| uClinux: | All the Core Modules are fully supported by uClinux. The required boot loader and uClinux can be downloaded from: http://blackfin.uClinux.org. |

**Upcoming Products and Software Releases:**

Keep up-to-date with all the changes to the Bluetechnix product line and software updates at: http://www.bluetechnix.com .

# BLACKFIN Design Service

Based on more than five years of experience with Blackfin, Bluetechnix offers development assistance as well as custom design services and software development.

# 1 Introduction

The EXT-BF5xx-Experimental Board is an extender plug-on board for all Blackfin based Development and Evaluation Boards. Please note the images may vary from actual product

## 1.1 Overview

The EXT-BF5xx-Experimental Board includes the following components:

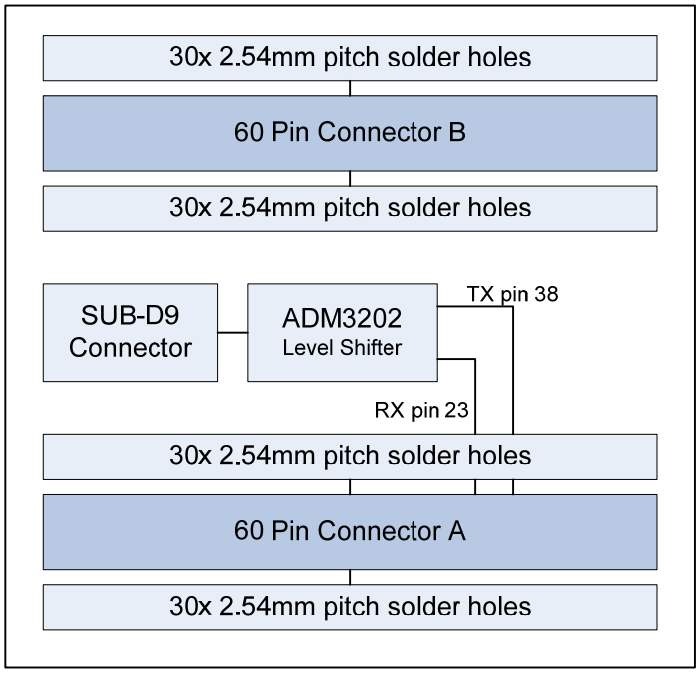


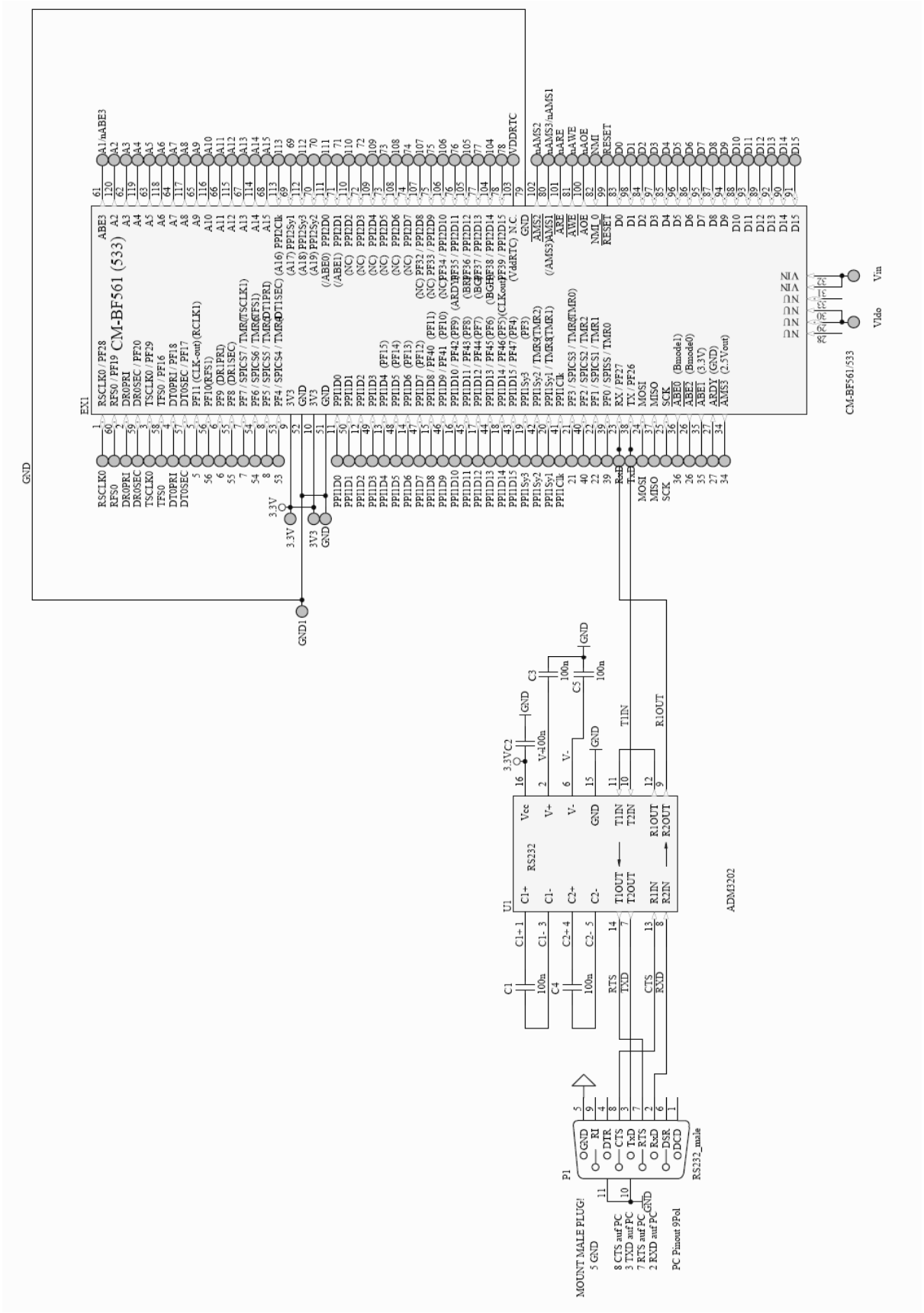

Figure 1-1: Overview of the EXT-BF5xx-Experimental Board

- **1 SUB-D9 UART Connector**
  - ADM3202 1Mbps transceiver compatible to RS232
- **120 Expansion Holes**

**Important NOTE:**

**When using the Eval-BF5xx or the DEV-BF5xxDA-Lite make sure SW1 on these boards is at position B so that the RX/TX lines are not routed towards the USB-to-UART Chip U2. These lines then directly feed the ADM3202 level shifter!**

# 2 Schematic


CM-BF561 (533)
EX1
GND
3.3V
GND1
U1
ADM3202
RS232
P1
RS232_male
MOUNT MALE PLUG!
5 GND
8 CTS auf PC
3 TXD auf PC
7 RTS auf PC
2 RXD auf PC
PC Pinout 9Pol
CM-BF561.533
Vin
Vdo

## 2.1 Mechanical Outline

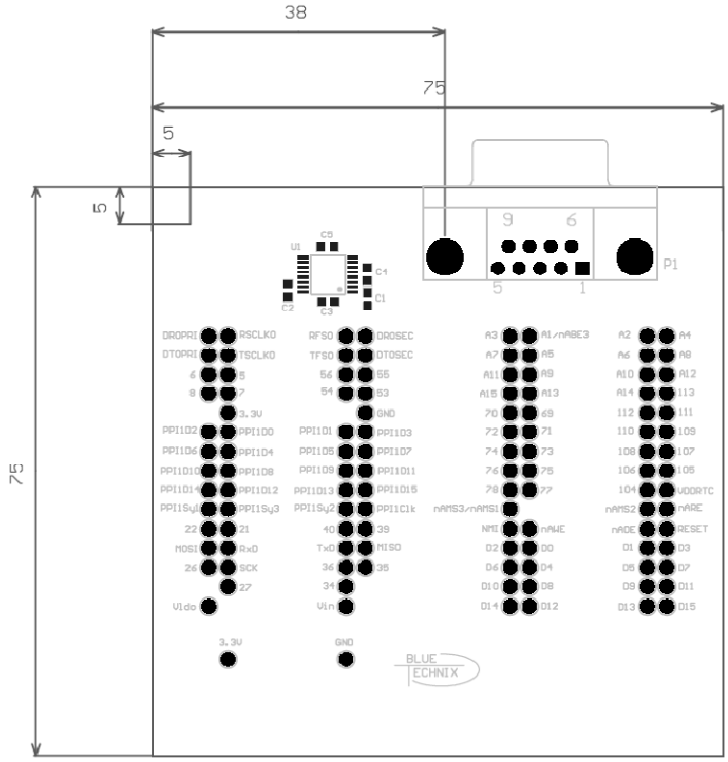



Figure 2-1: Mechanical Outline – TOP

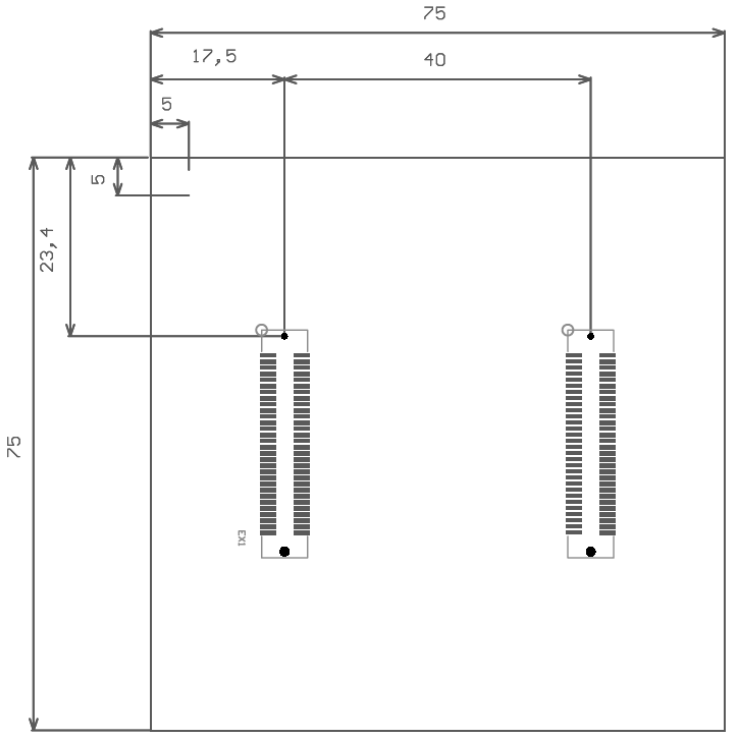



Figure 2-2: Mechanical Outline – Bottom

# 3 Anomalies

| Version | Anomalie |
|---|---|
| - | no |

Table 3-1: Anomalies

# 4 Product Changes

| Version | Changes |
|---|---|
| V1.2 | Some parts moved from top to bottom |
| V1.1 | RS232 added |
| V1.0 | - |

Table 4-1: Product Changes

# 5 Document Revision History

| Version | Date | Document Revision |
|---|---|---|
| 4 | 2010 06 23 | Layout updated. |
| 3 | 2008 08 13 | English checked for grammar, spelling and clarity. |
| 2 | 2006 12 01 | Version 1.1 |
| 1 | 2006 09 08 | Version 1.0 |

Table 5-1: Revision History

# A List of Figures