

# Hardware User Manual

**EXT-BF5xx-EXP V1.x**

*...maximum performance at minimum space*

## Contact

Bluetechnix Mechatronische Systeme GmbH

Waidhausenstr. 3/19

A-1140 Vienna

AUSTRIA/EUROPE

[office@bluetechnix.at](mailto:office@bluetechnix.at)

<http://www.bluetechnix.com>

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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>
- uClinix:** All the Core Modules are fully supported by uClinix. The required boot loader and uClinix can be downloaded from: <http://blackfin.uClinix.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:

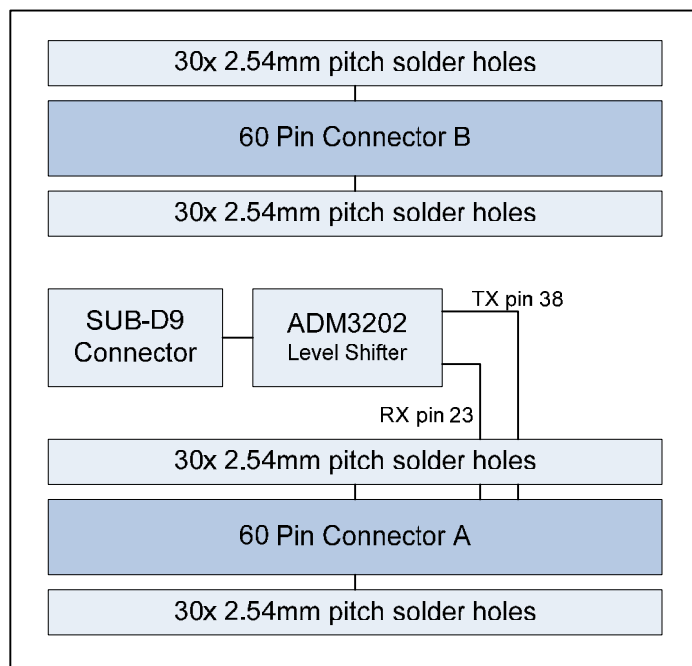


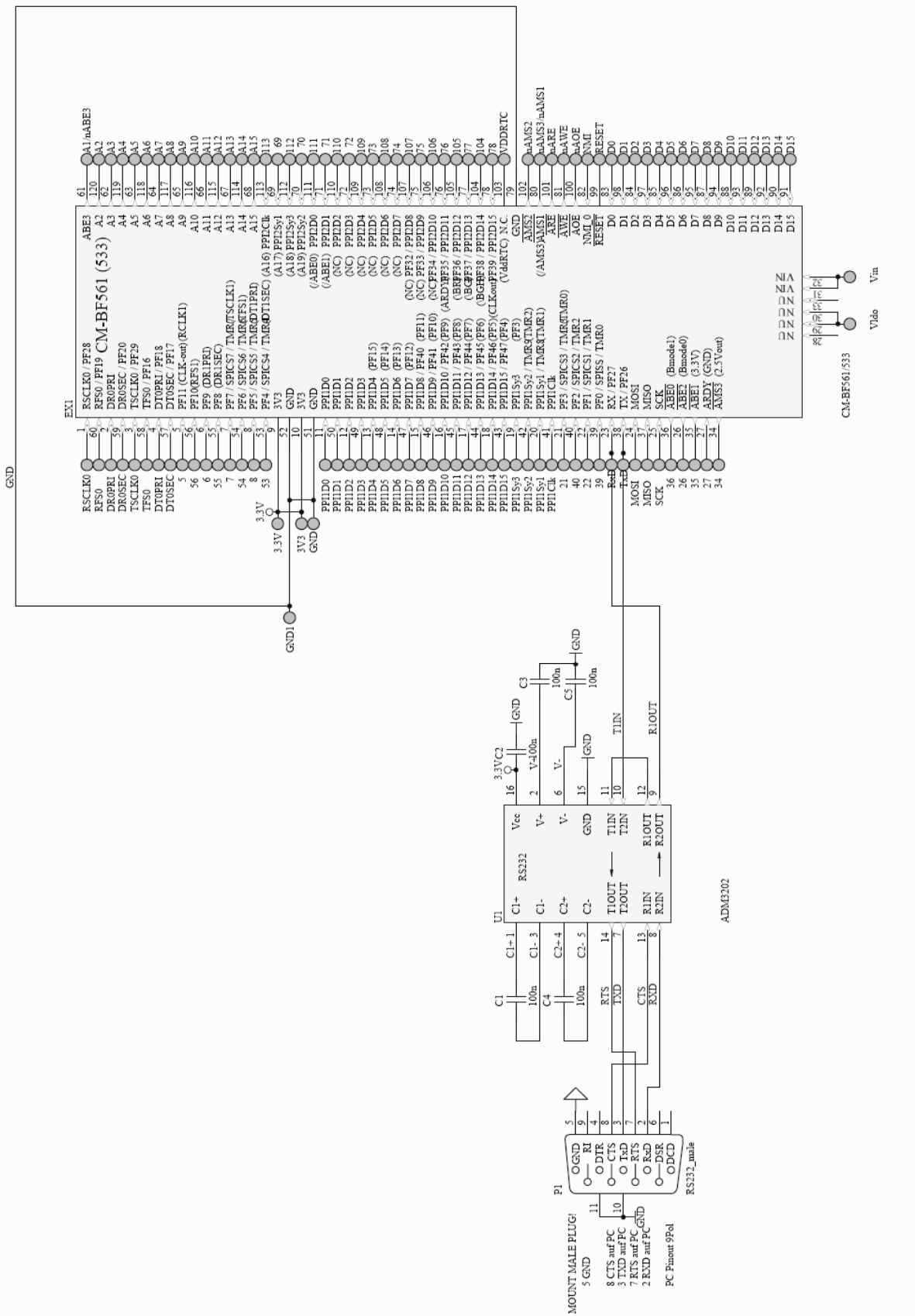
Figure 1-1: Overview of the EXT-BF5xx-Experimental Board

- **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





## 2.1 Mechanical Outline

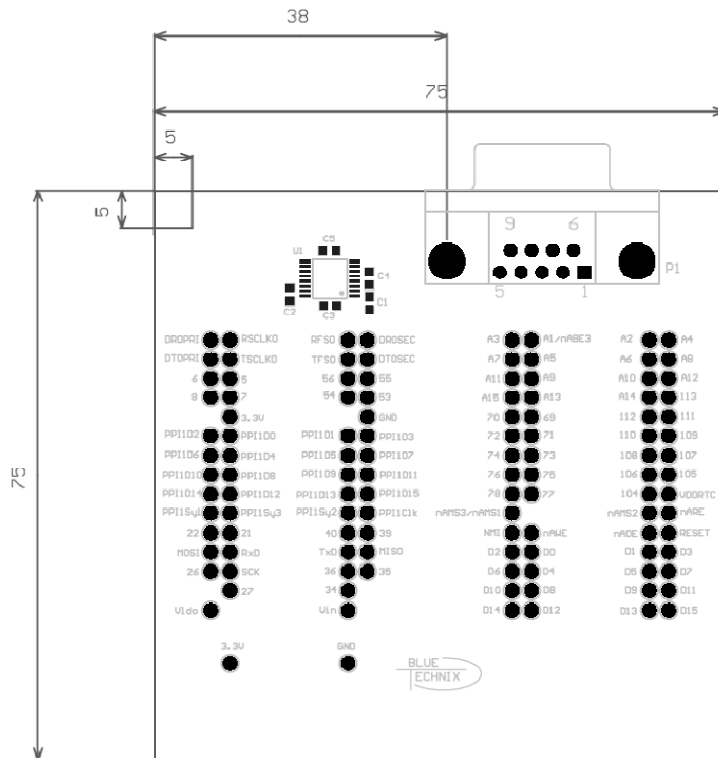


Figure 2-1: Mechanical Outline – TOP

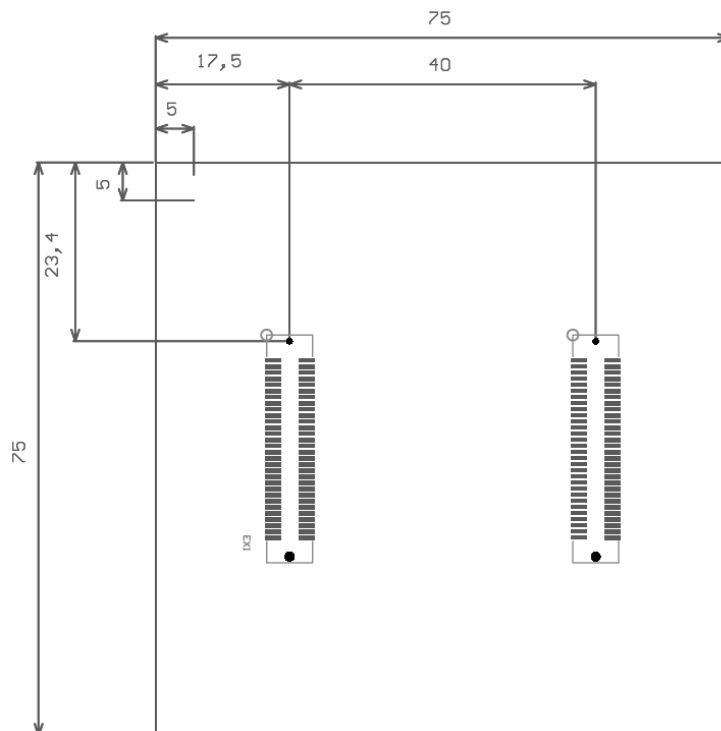


Figure 2-2: Mechanical Outline – Bottom

### 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

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