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# Hardware User Manual DEV-BF548-Lite v1.x DEV-BF548DA-Lite v1.x

...maximum performance at minimum space



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# **Packing List**

The DEV-BF548DA-Lite and the DEV-BF548-Lite Board Package contain the following items:

- 1. DEV-BF548DA-Lite or DEV-BF548-Lite Board
- 2. 1x USB Cable (USB A/B)
- 3. 1x USB Cable (USB A/B) (DEV-BF548DA-Lite only)
- 4. 1x USB Cable (USB A/Mini USB)
- 5. 1x Ethernet Cable
- 6. 1x Power Supply.
- 7. Support CD

**Note:** The Core Modules are not shipped with the board, so you must order them separately.



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The information herein is given to describe certain components and shall not be considered as a guarantee of characteristics.

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Bluetechnix takes no liability for any damages and errors causing of the usage of this board. The user of this board is responsible by himself for the functionality of his application. He is allowed to use the board only if he has the qualification. More information is found in the General Terms and Conditions (AGB).

#### 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: <a href="http://www.schmid-engineering.ch">http://www.schmid-engineering.ch</a>

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: <a href="http://www.bluetechnix.com">http://www.bluetechnix.com</a>.

# **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

NOTE: The DEV-BF548DA-Lite has an on-board Debug Agent, which is not available on the DEV-BF548-Lite Board. All other features are identical! In this document, when describing both boards, the name DEV-BF548-Lite is used.

The DEV-BF548-Lite Development Board with integrated Debug Agent is designed as a development and application board for the high performance ADSP-BF548 based CM-BF548 Core Module. Special feature of the board is the 10/100Mbit industrial Ethernet controller. The integrated Debug Agent is a USB based debug interface which enables programming and debugging of the Blackfin Core Modules. It is fully compatible with the Visual DSP++ development environment. The development board provides all interfaces on dedicated connectors or expansion connectors. Extender boards can be plugged on top of the Development Board in order to enable additional interfaces.

#### 1.1 Overview

The DEV-BF548-Lite Board includes the following components:

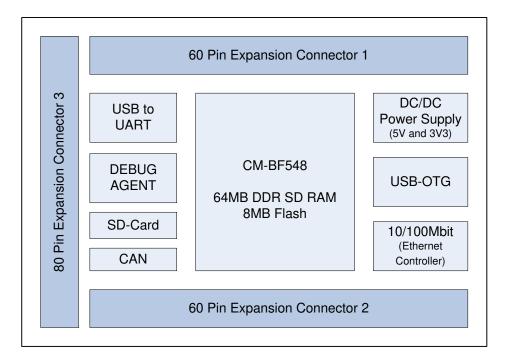


Figure 1-1: Overview of the DEV-BF548-Lite Board

#### DC/DC Converters

- o 5V@2A
- 3V3@1.5A (draws its power from the 5V output of the DC/DC)

#### • 1 Core Module Slot

Supports the CM-BF548 Core Module

#### USB-to-UART Port

- Supports up to 915kbps UART-USB conversion.
- o Emulates a standard COM port on the computer.
- o Drivers for Windows and Linux available



#### • JTAG

o JTAG-Plug that supports all analog Devices JTAG Emulators.

#### • Expansion Connector 1 (X1)

- o Data Bus
- Address Bus
- o Memory Control
- o RESET
- o PPIO (Parallel Port Interface 0)
- GPIO (Programmable)
- o Power Supply

#### • Expansion Connector 2 (X2)

- o PPI1 (Parallel Port Interface 1), SPORT1
- Power Supply (Main Supply Connector)
- o GPIO (Programmable)
- o UARTO
- o SPI2

#### • Expansion Connector 3 (X3)

- ATAPI Interface
- o SPI0, SPI1
- SPORT2, SPORT3
- o CAN 0, CAN1
- o UART2, UART3
- o PPI0 (Sync, D16,D17))
- SDIO Interface
- o GPIO (Programmable)

#### • USB2.0 OTG Connector

o Uses the On-Board USB-OTG transceiver

#### • RJ-45 Ethernet Plug

o Connected to the On-Board SMSC LAN9218 Ethernet Controller

#### • External Power Supply

o The board is shipped with a 12V, 2A external DC/DC Power Supply



# 2 Functional Specification

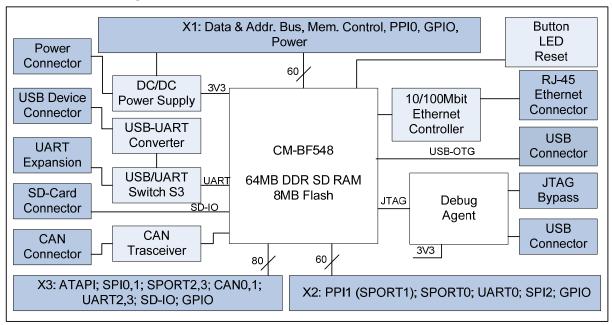


Figure 2-1: Functional Block Diagram

Power connector and Power supply:

The supplied power supply should be used. It can deliver up to 2A at 12V.

The input voltage range of an alternative power supply must be between 6-16V!

The on-board DC/DC power supply generates 5V and 3.3V which are made available at the expansion connectors.

The maximum current that can be drawn from the 5V is 2A, but take care this includes the current going into the 3.3V regulator also, because this regulator is powered by the 5V. The maximum current that can be drawn from the 3.3V is 1.5A but note that this means at least 1A additional load on the 5V connector.

The serial Port 0 (UART0, default Console IO) or Port1 (UART1) of the Core Module can be routed directly to the *USB/OART* Switch (S3).

An Ethernet controller (SMSC LAN9218) is connected to the data and address bus on the baseboard providing a high speed 10/100MBit LAN Interface

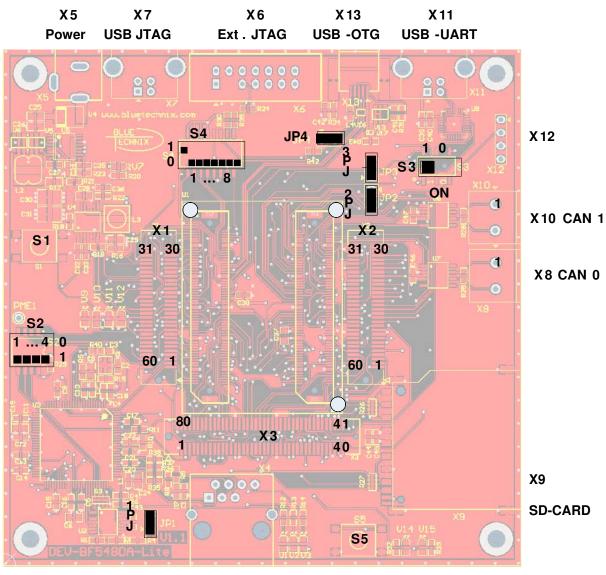
An *SD-Card connector* is mounted on the board and is connected to the processors SD-IO Interface. With the SD-Card one can make use of file IO Functions delivered with the BLACKSheep Software. BLACKSheep supports SD-Cards and includes a FAT file system as well as the most relevant File IO Functions. The complete BLACKSheep software package can be purchased from Bluetechnix.

The USB2.0 OTG connector interfaces with the processors on-chip (ADSP-BF548) USB Transceiver.



# 3 PCB Placement and Mechanical Outline

## 3.1 PCB Placement



X4 Ethernet JACK

Orner holes on Core Module indicating insertion Rotation

Figure 3-1: Connector PCB Placement

**ATTENTION:** Please mind the direction while inserting the Core Module!



## 3.2 Mechanical Outline

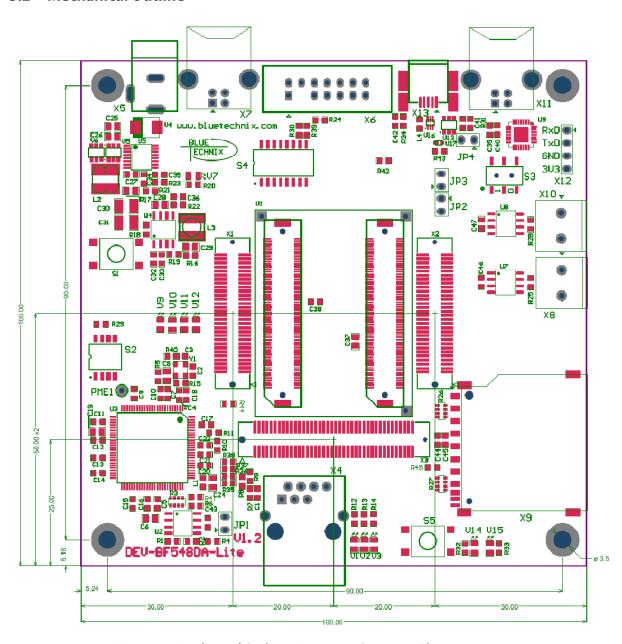


Figure 3-2: Mechanical Outline – Expansion Connector Placement



# 3.3 Extension Board Footprint

If you want to design your own Extension Board for the DEV-BF548, you can use the following Board dimensions. The mating Connectors in Figure 3-3 are mounted on top.

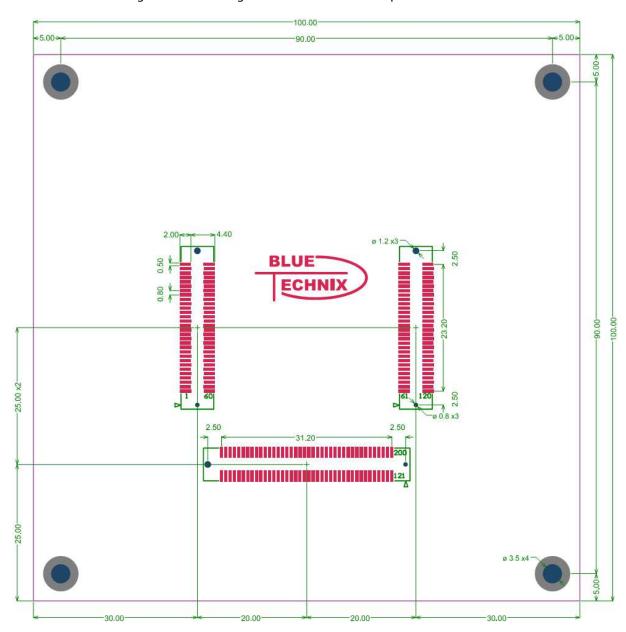


Figure 3-3: Recommended Footprint for Extension Boards – top view



# **4 Connector Description**

#### 4.1 X4 -RJ45 Ethernet Connector

Pin No.	Signal (Core Module)	IO-Type
1	TX+	0
2	TX-	0
3	RX+	I
4	NC	-
5	NC	-
6	RX-	I
7	NC	-
8	NC	-

Table 4-1: Ethernet Connector

### 4.2 X9 –SD-Card Connector (bottom Mount)

Pin No.	Signal (Core Module)	Description (SD Card)
0	SD_D2	DAT2
1	SD_D3	CD/DAT3
2	SD_CMD	CMD
3	GND	VSS1
4	3,3V	VDD
5	SD_CLK	CLK
6	GND	VSS2
7	SD_D0	DAT0
8	SD_D1	DAT1
9	-	CD
10	-	WP

Table 4-2: SD-Card Connector

#### 4.3 X6 – JTAG Bypass Connector

The JTAG connector is compliant with any Blackfin JTAG Emulator from Analog Devices. When an external JTAG emulator is attached the on-board JTAG is bypassed and the external one is automatically used.

#### 4.4 X11 – USB-UART Connectors

Connects either UARTO (when S3 is in Pos 1) or UART1 (when S3 is in Pos 0) to the USB Interface enabling a COM Port on the PC. UARTO is standard console IO for the BLACKSheep Software.

#### 4.5 X12 UART Expansion Pads

When S3 is in position 1 the UART1 on PortH (TX, RX) is available on the expansion pins and disconnected from the USB-UART Chip.

Pin No.	Signal	Signal Type	
1 TxD Blackfin		Input Core Module	
2 RxD Blackfin		Output Core Module	
3	GND		
4	3V3	Regulated Power	

Table 4-3: UART1 additional Header



## 4.6 X1, X2, X3 Expansion Connectors

The Expansion Connectors on the DEV-BF548-Lite for a Stacked Height of 16mm are of the following type:

Part	Manufacturer	Manufacturer Part Nr.
X1, X2	AMP (Stacked Height = 16mm)	5-5179010-2
Matching connector	AMP	5179031-2
X3	AMP (Stacked Height = 16mm)	5-5179010-3
Matching connector	AMP	5179031-3

Table 4-4: DEV-board connector types

The matching connector, which is used for building an extender board, can be ordered from Bluetechnix.

## 4.7 X8, X10 - CAN1, CAN0 Connector

Pin No.	Signal (Core Module)	IO-Type
1	CAN+	I/O
2	CAN-	I/O

Table 4-5: CAN Connector

#### 4.8 X5 – Power Connector

The board is shipped with a 12V, 2A external DC/DC Power Supply which should be used.

Pin No.	Signal	Description
1	Vin (+6V to +16V DC) Input Supply	Preferable 12V DC (2A)
2	NC	
3	GND	

Table 4-6: Power Supply

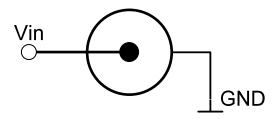


Figure 4-1: Power connector

To connect to X141 use a "DCPP1" e.g. from Cliff Electronic Components (2.1mm \* 5.5mm \* 9.5mm) plug to the power supply. Outer contact is GND, inner contact is VCC.



#### 4.9 Expansion Connectors

The interface to the extender boards is grouped into three different connectors (X1, X2, X3). The three tables below shows the pin out of these three connectors. The column "Pin No. (Connector)" shows the pin number of each connector, while the column "Pin No. (Symbol) shows the pin number of the extension connector schematic symbol, where the pins are numbered from 1 to 200. The column "Pin No. CM" represents the pin number of the corresponding signal on the Core Module.

# 4.9.1 X2 – Expansion Connector 2

Pin	No. Pin	No	Signal	Signal type	Pin No CM
(Symbol)	(Connector)		3181101	Signal type	T III TIO CIVI
1	1		PC7	1/0	93
2	2		PC6	I/O	94
3	3		PC3	I/O	97
4	4		PC2	I/O	98
5	5		CLKOUT	0	70
6	6		PE15	1/0	185
7	7		PA13	1/0	114
8	8		PA5	1/0	106
9	9		3.3V	PWR	
10	10		3.3V	PWR	
11	11		PD0	1/0	135
12	12		PD2	1/0	137
13	13		PD4	1/0	139
14	14		PD6	1/0	141
15	15		PD8	1/0	143
16	16		PD10	1/0	145
17	17		PD12	I/O	147
18	18		PD14	I/O	149
19	19		PH0	1/0	22
20	20		PE12	1/0	188
21	21		PB11	1/0	130
22	22		PB9	1/0	128
23	23		PE8	1/0	192
24	24		PB13	1/0	132
25	25		PB12	I/O	131
26	26		PH1	1/0	23
27	27		nARDY	I	21
28	28		PH4	1/0	26
29	29		5.0V *)	PWR	
30	30		5.0V <sup>2</sup> )	PWR	·
31	31		Vin <sup>3</sup> )	PWR	
32	32		Vin <sup>3</sup> )	PWR	
33	33		PH7	1/0	29
34	34		nAMS3	0	32
35	35		nABE1	0	17
36	36		nABE0	0	16
37	37		PB14	1/0	133
38	38		PE7	1/0	193
39	39		PB8	1/0	127



40	40	PB10	I/O	129
41	41	PE11	1/0	189
42	42	PE13	I/O	187
43	43	PD15	1/0	150
44	44	PD13	I/O	148
45	45	PD11	1/0	146
46	46	PD9	I/O	144
47	47	PD7	1/0	142
48	48	PD5	1/0	140
49	49	PD3	1/0	138
50	50	PD1	1/0	136
51	51	GND	PWR	
52	52	GND	PWR	
53	53	PA1	1/0	102
54	54	PA9	1/0	110
55	55	PH3	1/0	25
56	56	PE14	I/O	186
57	57	PC1	I/O	99
58	58	PC0	1/0	100
59	59	PC5	1/0	95
60	60	PC4	1/0	96

4-7 Expansion Connector X2

- 1) Maximum current carrying capacity: **1A**.
- 2) Pin 29 and 30 of the X8 connector are +5V stabilized from the DC/DC that can be used for custom add-on boards or the extender boards. Maximum current carrying capacity: **900mA**.(**Attention:** If Core Modules with USB in host mode are used, the current must be shared with the connected USB device.
- 3) Pin 31 and 32 of the X7 are Vin of the external power supply minus the input protection diode voltage. These pins can be used for custom add-on board power supplies. Maximum current carrying capacity: **1A**.



4.9.2 X1 – Expansion Connector 1

Pin	No. Pin	No.	Signal	Signal type	Pin No CM
(Symbol)	(Connector)				
61	1		A1	0	1
62	2		A3	0	3
63	3		A5	0	5
64	4		A7	0	7
65	5		A9	0	9
66	6		A11	0	11
67	7		A13	0	13
68	8		A15	0	15
69	9		PG1	1/0	165
70	10		PG2	I/O	164
71	11		PF1	I/O	181
72	12		PF3	I/O	179
73	13		PF5	I/O	177
74	14		PF7	I/O	175
75	15		PF9	I/O	173
76	16		PF11	1/0	171
77	17		PF13	I/O	169
78	18		PF15	I/O	167
79	19		GND	PWR	
80	20		nAMS1	0	30
81	21		nAWE	0	20
82	22		nNMI		34
83	23		D0	I/O	35
84	24		D2	1/0	37
85	25		D4	I/O	39
86	26		D6	I/O	41
87	27		D8	I/O	43
88	28		D10	I/O	45
89	29		D12	I/O	47
90	30		D14	I/O	49
91	31		D15	I/O	50
92	32		D13	I/O	48
93	33		D11	I/O	46
94	34		D9	1/0	44
95	35		D7	1/0	42
96	36		D5	I/O	40
97	37		D3	I/O	38
98	38		D1	I/O	36
99	39		nRESET	1/0	67
100	40		nAOE	0	18
101	41		nARE	0	19
102	42		nAMS2	0	31
103	43		3.3V	PWR	
104	44		PF14	I/O	168
105	45		PF12	1/0	170
106	46		PF10	I/O	172
107	47		PF8	I/O	174



108	48	PF6	I/O	176
109	49	PF4	1/0	178
110	50	PF2	I/O	180
111	51	PF0	1/0	182
112	52	PH2	I/O	24
113	53	PG0	1/0	166
114	54	A14	0	14
115	55	A12	0	12
116	56	A10	0	10
117	57	A8	0	8
118	58	A6	0	6
119	59	A4	0	4
120	60	A2	0	2

4-8 Expansion Connector X1

# 4.9.3 X3 – Expansion Connector 3

Pin No. (Symbol)	Pin No (Connector)	. Signal	Signal type	Pin No CM
121	1	GND	PWR	
122	2	PJ13	1/0	74
123	3	PJ12	1/0	75
124	4	PJ11	I/O	76
125	5	PJ10	1/0	77
126	6	PJ9	1/0	78
127	7	PJ8	1/0	79
128	8	PJ7	I/O	80
129	9	PJ6	1/0	81
130	10	PJ5	I/O	82
131	11	PJ4	1/0	83
132	12	PJ3	I/O	84
133	13	PJ2	1/0	85
134	14	PJ1	I/O	86
135	15	GND	PWR	
136	16	PB0	I/O	119
137	17	PB1	1/0	120
138	18	PB2	I/O	121
139	19	PB3	1/0	122
140	20	PB4	I/O	123
141	21	PB5	1/0	124
142	22	PB6	I/O	125
143	23	PB7	1/0	126
144	24	GND	PWR	
145	25	PA0	1/0	101
146	26	PA2	I/O	103
147	27	PA3	1/0	104
148	28	PA4	I/O	105
149	29	PA6	1/0	107
150	30	PA7	I/O	108
151	31	PA8	1/0	109
152	32	PA10	1/0	111



153	33	PA11	1/0	112
154	34	PA12	I/O	113
155	35	PA14	1/0	115
156	36	PA15	I/O	116
157	37	GND	PWR	
158	38	GND	PWR	
159	39	3.3V	PWR	
160	40	3.3V	PWR	
161	41	5.0V	PWR	
162	42	Vin	PWR	
163	43	GND	PWR	
164	44	PG3	I/O	163
165	45	PG4	I/O	162
166	46	PG5	I/O	161
167	47	PG6	1/0	160
168	48	PG7	I/O	159
169	49	PG8	1/0	158
170	50	PG9	I/O	157
171	51	PG10	1/0	156
172	52	PG11	I/O	155
173	53	PG12	1/0	154
174	54	PG13	I/O	153
175	55	PG14	1/0	152
176	56	PG15	I/O	151
177	57	GND	PWR	
178	58	PE0	I/O	200
179	59	PE1	1/0	199
180	60	PE2	I/O	198
181	61	PE3	1/0	197
182	62	PE4	I/O	196
183	63	PE5	I/O	195
184	64	PE6	I/O	194
185	65	PE9	1/0	191
186	66	PE10	I/O	190
187	67	GND	PWR	
188	68	PC8	I/O	92
189	69	PC9	1/0	91
190	70	PC10	I/O	90
191	71	PC11	1/0	89
192	72	PC12	I/O	88
193	73	PC13	1/0	87
194	74	PH6	I/O	28
195	75	PH5	I/O	27
196	76	ATAPI_PDIAG	i i	134
197	77	EXT_WAKEUP	0	33
198	78	GND	PWR	
199	79	CLKBUF	0	69
200	80	GND	PWR	

4-9 Expansion Connector X3



# 5 Switches, Jumper and LED Description

#### 5.1 S1 – Reset switch

Performs system reset.

# 5.2 S2 - Ethernet Control Signals / SDCARD CS



**Default Settings** 

Dipswitch	Function
S2.1	Connect SDCARD CS to PC5
S2.2	Connect nAMS1 from Core Module to Ethernet chip
S2.3	Connect PE6 from Core Module to Ethernet chip IRQ
S2.4	Connect PME of Ethernet chip to test point PME1

5-1 DIP switch S2

#### 5.3 S3 – UART Switch

Move S3 to position 1 to route the Core Modules RX0 and TX0 signals to USB

Move S3 to position 0 to route the Core Modules RX1 and TX1 signals to USB

#### 5.4 S4 – Boot Configuration

S4.1 to S4.4 Control the boot mode and are described in chapter 6 Boot Mode Description.

Dipswitch	Function
S4.1	Bootmode 0
S4.2	Bootmode 1
S4.3	Bootmode 2
S4.4	Bootmode 3
S4.5	Power Supply for CANO Driver IC
S4.6	Power Supply for CAN1 Driver IC
S4.7	Connect TXD-USB to VCC
S4.8	Connect S5 to VCC

5-2 DIP switch S4

#### 5.5 JP1 – Ethernet Speed Selection

Set jumper JP1 to select Ethernet Speed 10MBit/s and unset JP1 for 100Mbit/s.

# 5.6 JP2 -- Power Supply Jumper

This jumper can be removed in order to insert an AMPERE METER for current measurement:

#### 5.7 JP3 – RTC Power Jumper

This jumper is used to connect the VddRTC pin of the Core Module to 3.3V. You can also use this jumper to connect a battery to the internal RTC of the Blackfin.



#### 5.8 JP4 – USB ID

Short jumper JP4 to tie USB ID to GND on the USB-OTG Connector X13.

# 5.9 **S5 - Button**

The button S5 is a GPIO Button and connects to PH7.

## 5.10 General Purpose LEDs

Designator	Function	Blackfin GPIO
V14	GPIO LED	PH6
V15	GPIO LED	PH5

Table 5-3: Core Module LEDs

## 5.11 Ethernet LEDs

Designator	Color	Description
V1	Yellow	Fullduplex
V2	Green	Activity
V3	Green	100MB Speed LED

Table 5-4: Ethernet LEDs

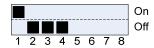
# 5.12 LEDs of the Debug Agent

Designator	Color	Description
V9	Green	Flag0
V10	Green	Flag1
V11	Green	Monitor
V12	Green	Pr. done

Table 5-5: LEDs for the Debug Agent

# **6 Boot Mode Description**

Boot-settings for CM-BF548 (S4) only Switches 1 – 4 of 8 are shown



The default Boot Mode option for the BLACKSheep Software is 0001!

The default Boot Mode option for the uClinux / uBoot is 0001!

BMODE3-0 (S4.4-S4.1)	Description
0000	Idle-no boot
0001	Boot from 8- or 16-bit external flash memory
0010	Boot from 16-bit asynchronous FIFO
0011	Boot from serial SPI memory (EEPROM or flash)
0100	Boot from SPI host device
0101	Boot from serial TWI memory (EEPROM/flash)
0110	Boot from TWI host
0111	Boot from UART host



1000	Reserved
1001	Reserved
1010	Boot from (DDR) SDRAM
1011	Boot from OTP memory
1100	Reserved
1101	Boot from 8- or 16-bit NAND flash memory via NFC
1110	Boot from 16-Bit Host DMA
1111	Boot from 8-Bit Host DMA

Table 6-1: Boot modes

# 7 Installation

#### 7.1 Initial Board Setup

The installation guide is written for Windows (Windows 2000 and WinXP). However for connecting the USB device the driver for MAC and LINUX are available on the CD.

In order to set up und test your DEV-BF548-Lite board the following steps can be done:

1. Make sure jumpers JP2 and JP3 are set and the Switch S3 is in Position 1. as shown in Figure 7-1 (JP1 unset).

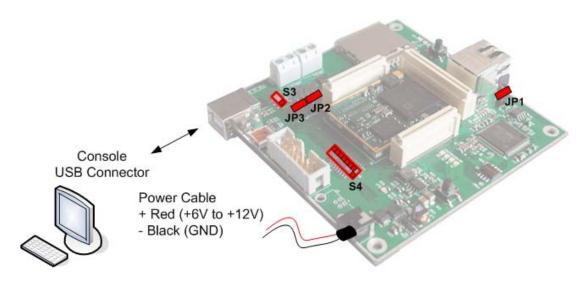


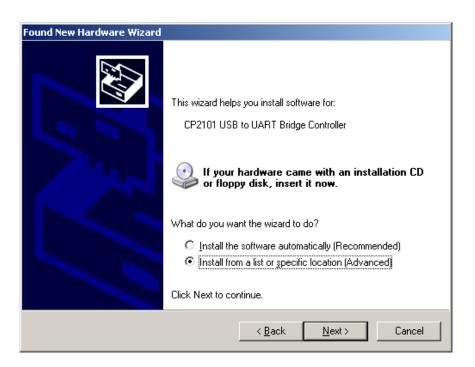
Figure 7-1: Setup of the DEV-BF548-Lite Board

- 2. If you want to use an SD-Card, insert the SD-Card in the appropriate slot at the bottom side of the board.
- 3. Connect the power supply to the power connector off the DEV-BF548-Lite board.
- 4. Connect the DEV-BF548-Lite Board via USB to the PC. The pre-flashed BLACKSheep starts and the LED mounted on the DEV-BF548-Lite board starts blinking. On the PC usually the 'Found New Hardware Wizard' opens.





If the wizard asks you to connect to the windows update site, select "No, not this time"



Choose: "Install from a list or specific location". The driver is located on your support CD.