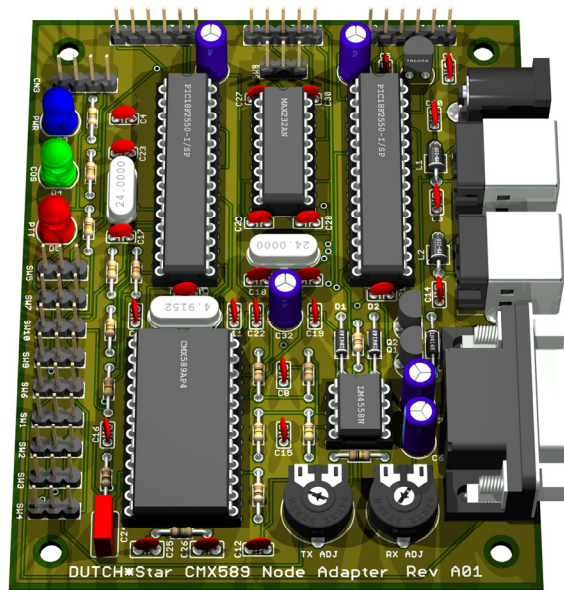


# ***DUTCH\*Star CMX589 Node Adapter***

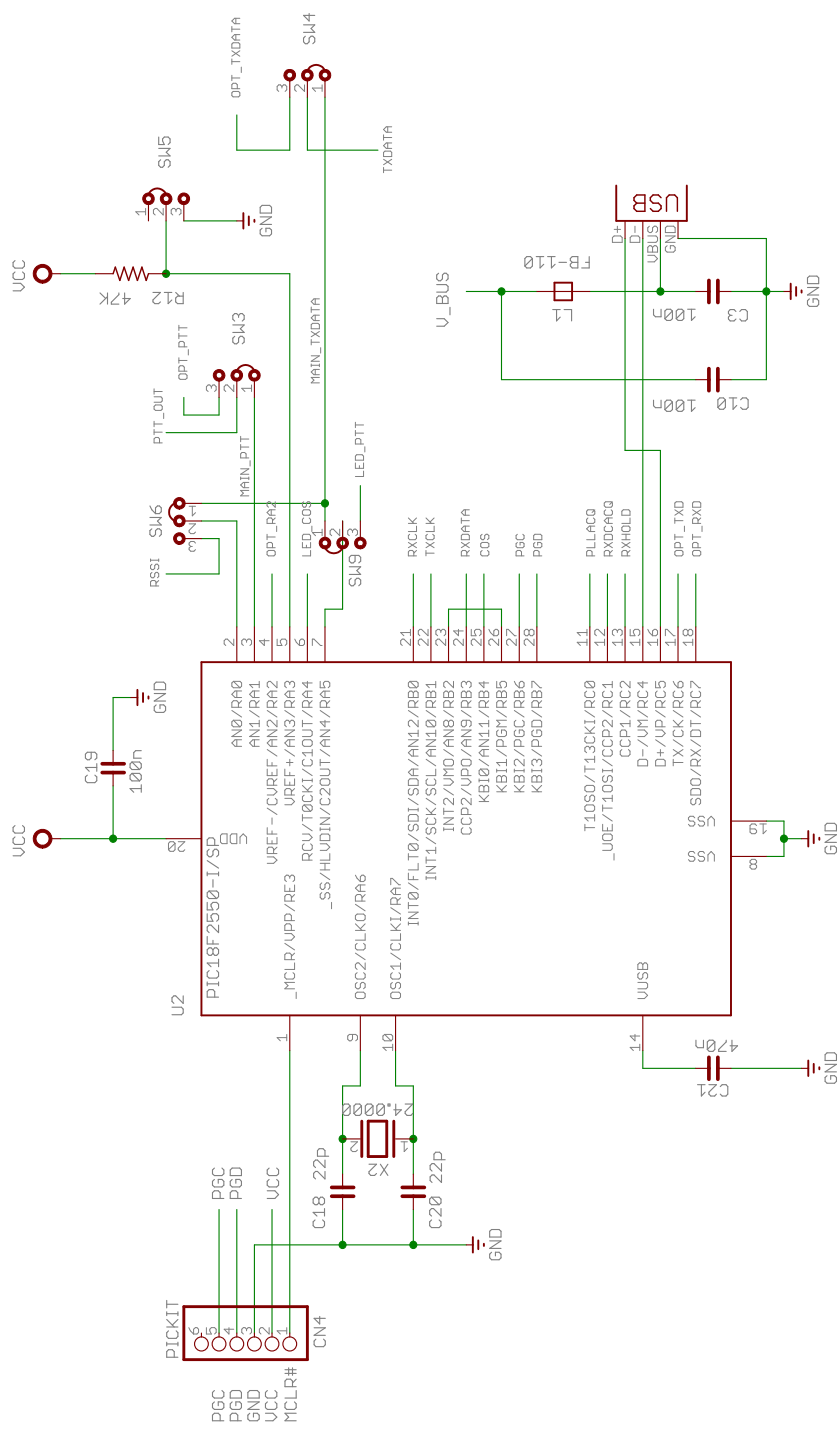


Designer: Fred N.van Kempen PA4YBR

More information can be found on [www.dutch-star.nl](http://www.dutch-star.nl)

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MICROALMALT CORPORATION. ANY REPRODUCTION, IN PART OR WHOLE, IS STRICTLY PROHIBITED WITHOUT WRITTEN PERMISSION.

**PROPRIETARY**

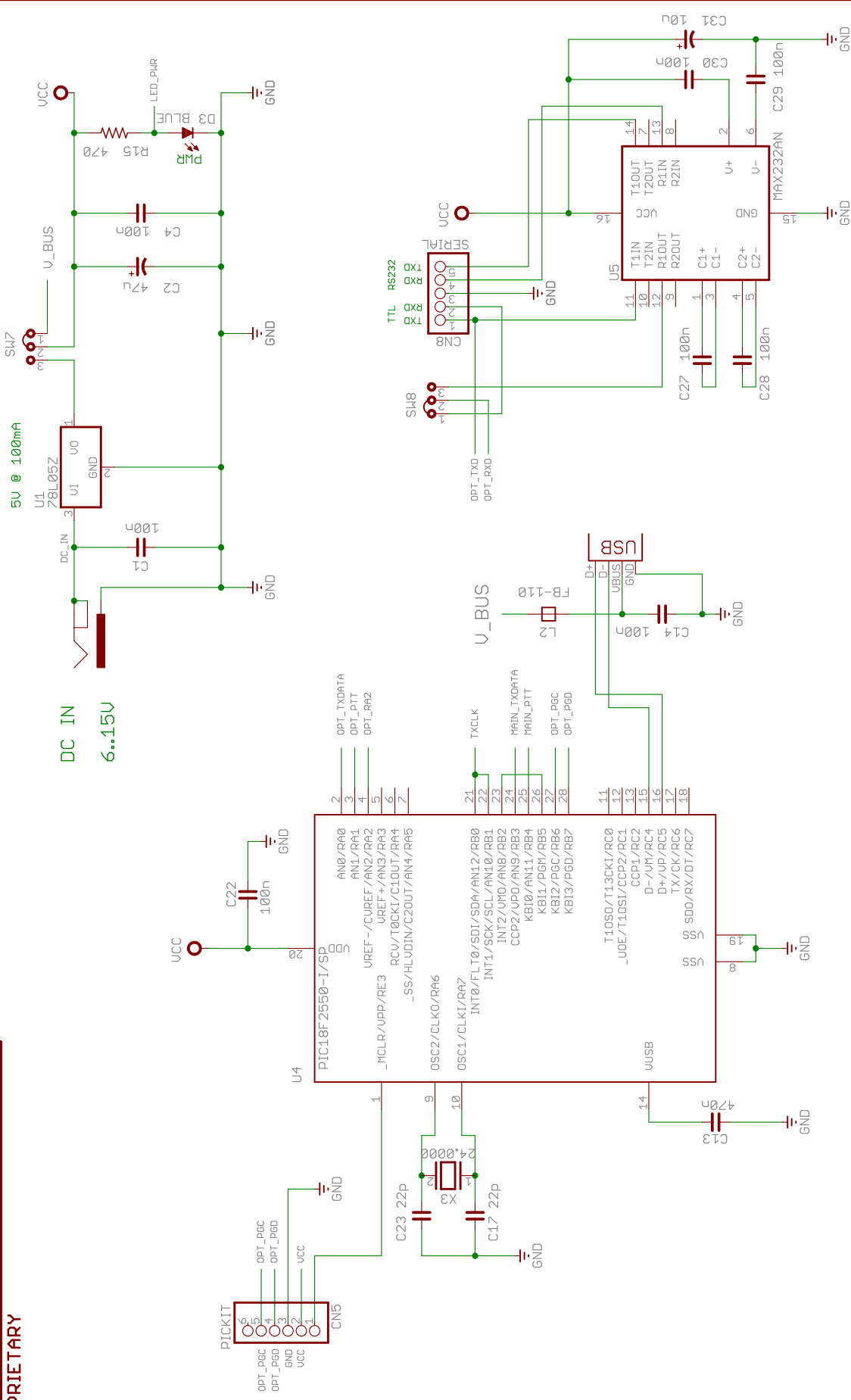


- SW1 - COS select (1=SW 3=DIR)
- SW2 - COS polarity (1=NOR 3=INV)
- SW3 - PTT select (1=SYS 3=OPT)
- SW4 - TXDATA select (1=SYS 3=OPT)
- SW5 - mode select (1=SINGLE 3=DUAL)
- SW6 - RA0 select (1=TXDATA 3=RSSI)
- SW7 - PWR select (1=USB 3=DC)
- SW8 - SERIAL select (1=TTL 3=RS232)
- SW9 - RA5 select (1=TXDATA 3=LEDPPT)
- SW10 - PTTLED select (1=RA5 3=PTT)

ISSUE	Microalmt Corporation BUSSUH The Netherlands	THIS DRAWING CONTAINS PROPRIETARY INFORMATION AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION.	© 2009
DRAWN	FVK	TITLE DUTCH*Star CMX589 Node Adapter Main CPU control	REV A01
CHECKED		DATE 31-8-2009 13:10:16	DRG N°
DATE		FILE: node	PAGE: 1/5

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MICROALM CORPORATION. ANY REPRODUCTION, IN PART OR WHOLE, IS STRICTLY PROHIBITED WITHOUT WRITTEN PERMISSION.

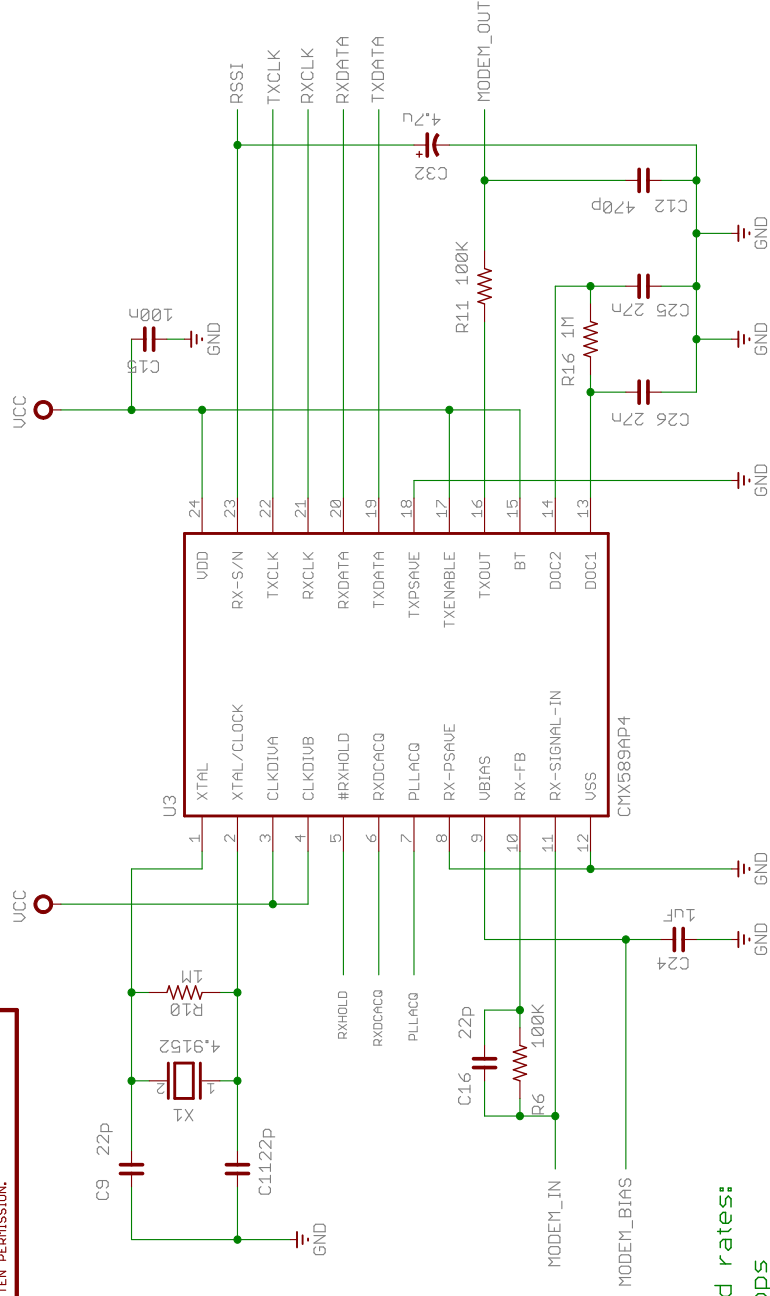
**PROPRIETARY**



ISSUE	MicroAlm Corporation BUSSUM The Netherlands	THIS DRAWING CONTAINS PROPRIETARY INFORMATION AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION.	© 2009
DRAWN	FVK	TITLE DUTCH*Star CMX589 Node Adapter Power Supply / Auxiliary CPU	REV A01
CHECKED		DATE 31-8-2009 13:10:16	DRG NO
DATE		FILE: node	PAGE: 2/5

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MICROALM CORPORATION. ANY REPRODUCTION, IN PART OR WHOLE, IS STRICTLY PROHIBITED WITHOUT WRITTEN PERMISSION.

**PROPRIETARY**



**\* Supported rates:**

- 4800 bps
- 9600 bps
- 19200 bps
- 38400 bps

using the 4.9152MHz XTAL. R6/C16 filter unchanged.

**\* Charge pump C25/C26 changes with data rate.**

speed	C25/26	R11	C12
4800	27n	100K	470p
9600	12n	47K	470p
19200	6n8	91K	120p
38400	3n3	47K	120p
64000	1n8	51K	68p
128000	860p	82K	22p

\* Resistors and capacitors as per datasheet tables

for speed of 4.8Kbps and xtal of 4.9152MHz

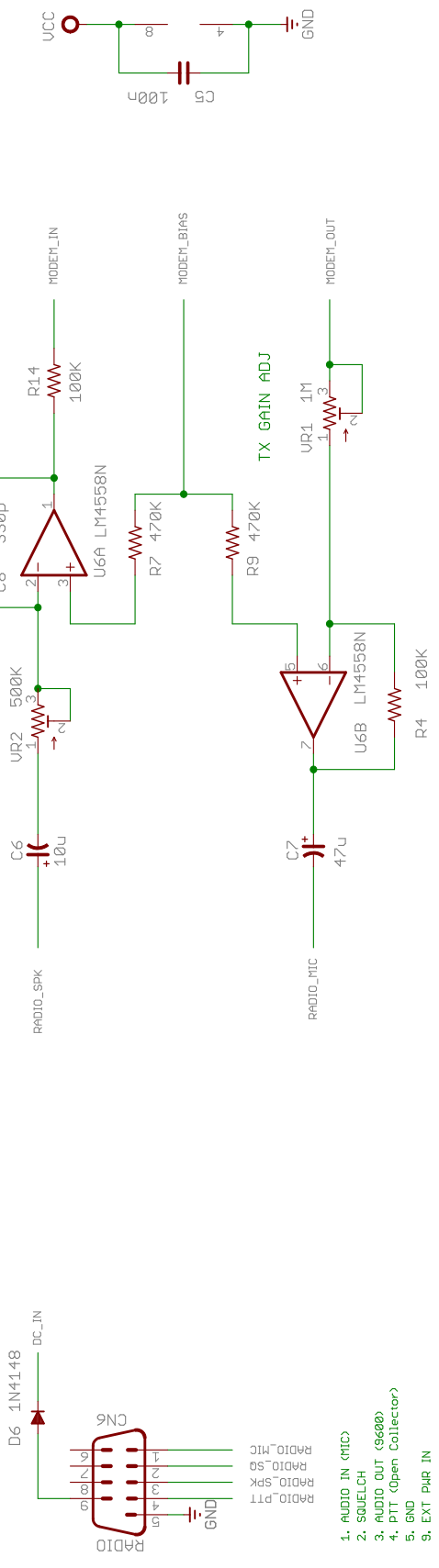
\* BT fixed to 0.5

\* R16 only needed if syncing problems occur.

ISSUE	MicroAlm Corporation BUSSUH The Netherlands	THIS DRAWING CONTAINS PROPRIETARY INFORMATION AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION.	© 2009
DRAWN	Fvk	TITLE	DUTCH*Star CMX589 Node Adapter
CHECKED			REV A01
DATE		DATE	31-8-2009 13:10:16
		FILE:	node
		DRG N°	
		PAGE:	3/5

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MICROALM CORPORATION. ANY REPRODUCTION, IN PART OR WHOLE, IS STRICTLY PROHIBITED WITHOUT WRITTEN PERMISSION.

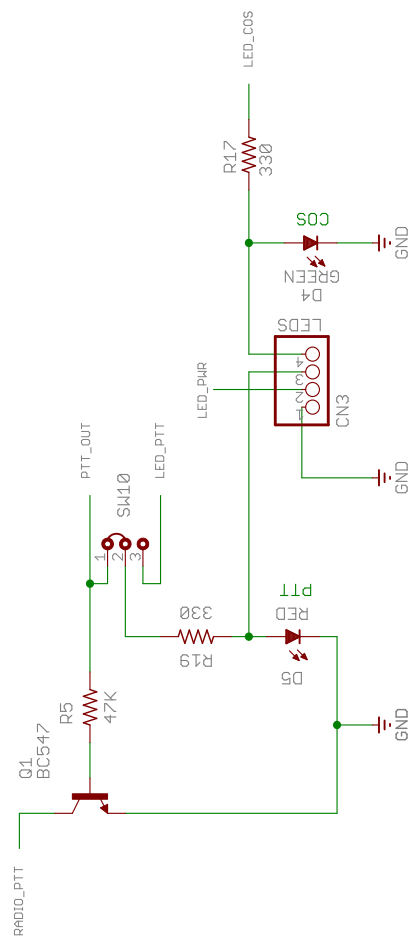
**PROPRIETARY**



### Radio Interface Connector

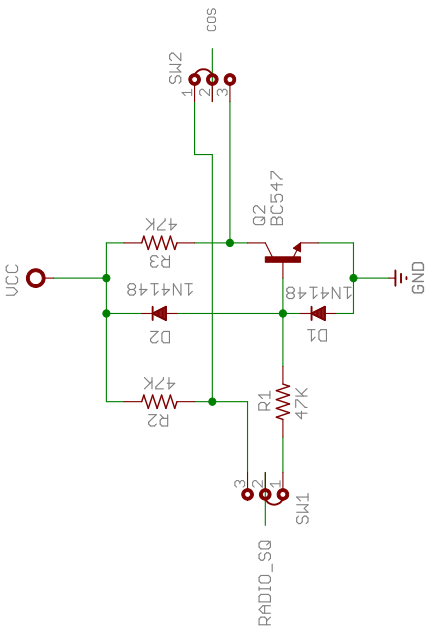
### Radio Interface Analog Frontend

1. AUDIO IN (MIC)
2. SQUELCH
3. AUDIO OUT (9600)
4. PTT (Open Collector)
5. GND
6. EXT PAIR IN



### Radio Interface PTT Control

### LED Connector



### Radio Interface COS Control

ISSUE	MicroAlm Corporation BUSSUM The Netherlands	THIS DRAWING CONTAINS PROPRIETARY INFORMATION AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION.	© 2009
DRAWN	Fvk	TITLE DUTCH*Star CMX589 Node Adapter Radio Interface	REV A01
CHECKED		DATE 31-8-2009 13:10:16	DRG N°
DATE		FILE: node	PAGE: 4/5

THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MICROALM CORPORATION. ANY REPRODUCTION, IN PART OR WHOLE, IS STRICTLY PROHIBITED WITHOUT WRITTEN PERMISSION.

**PROPRIETARY**

### Revision History

- \* LED series resistors changed from 2.2K to 330R and 470R (BLUE)
- \* XTAL capacitors changed from 18p to 22p for better stability
- \* Diode D1 reversed
- \* Q2 changed from 2N7000 to BC547; on PCB in reverse placement
- \* RX and TX labels near VR1 and VR2 are swapped!
- \* RESET disconnected; resistor R13 and jumper JP1 removed
- \* R7 and R9 changed from 180K/510K to 470K
- \* Small PCB fixes
- \* **!!! POLARITY OF CN7 REVERSED !!!**  
PLUS is now CENTER.

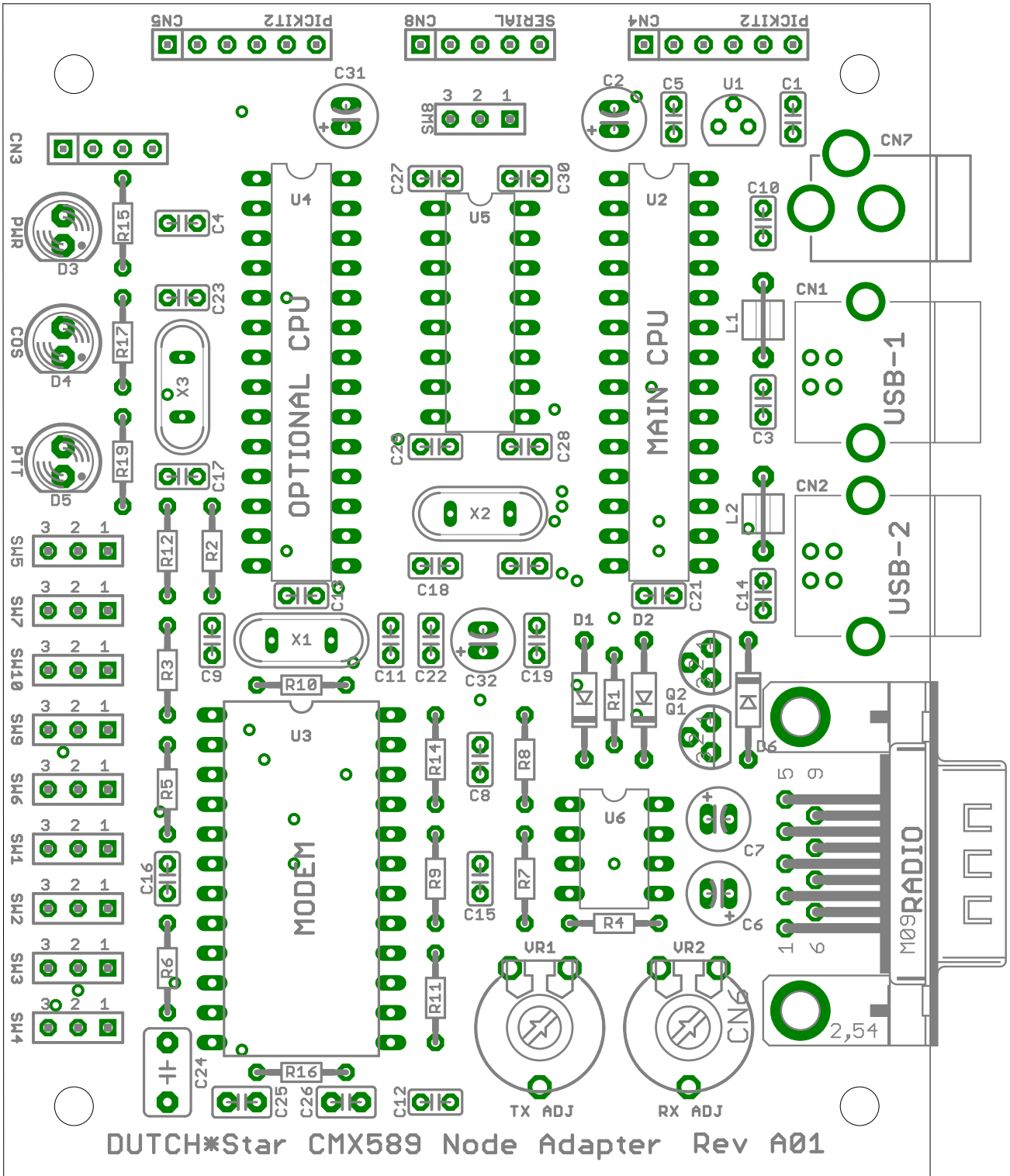
ISSUE	MicroAlm Corporation BUSSUM The Netherlands	THIS DRAWING CONTAINS PROPRIETARY INFORMATION AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION.	© 2009
DRAWN Fvk	TITLE DUTCH*Star CMX589 Node Adapter	REV A01	
CHECKED	Revision History		
DATE	DATE 31-8-2009 13:10:16	DRG N°	
	FILE: node		PAGE: 5/5

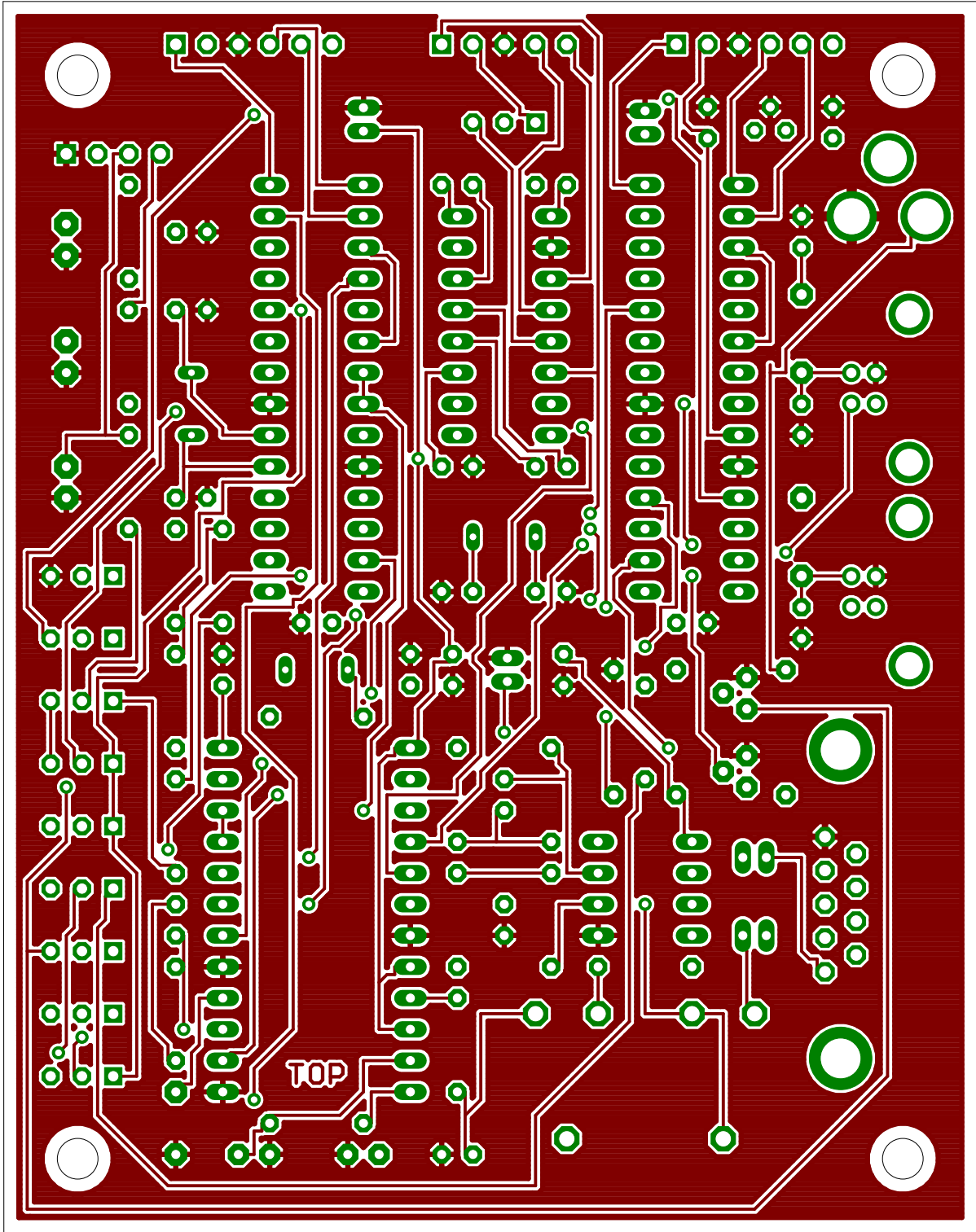
Partlist exported from node.sch at 31-8-2009 14:27:57

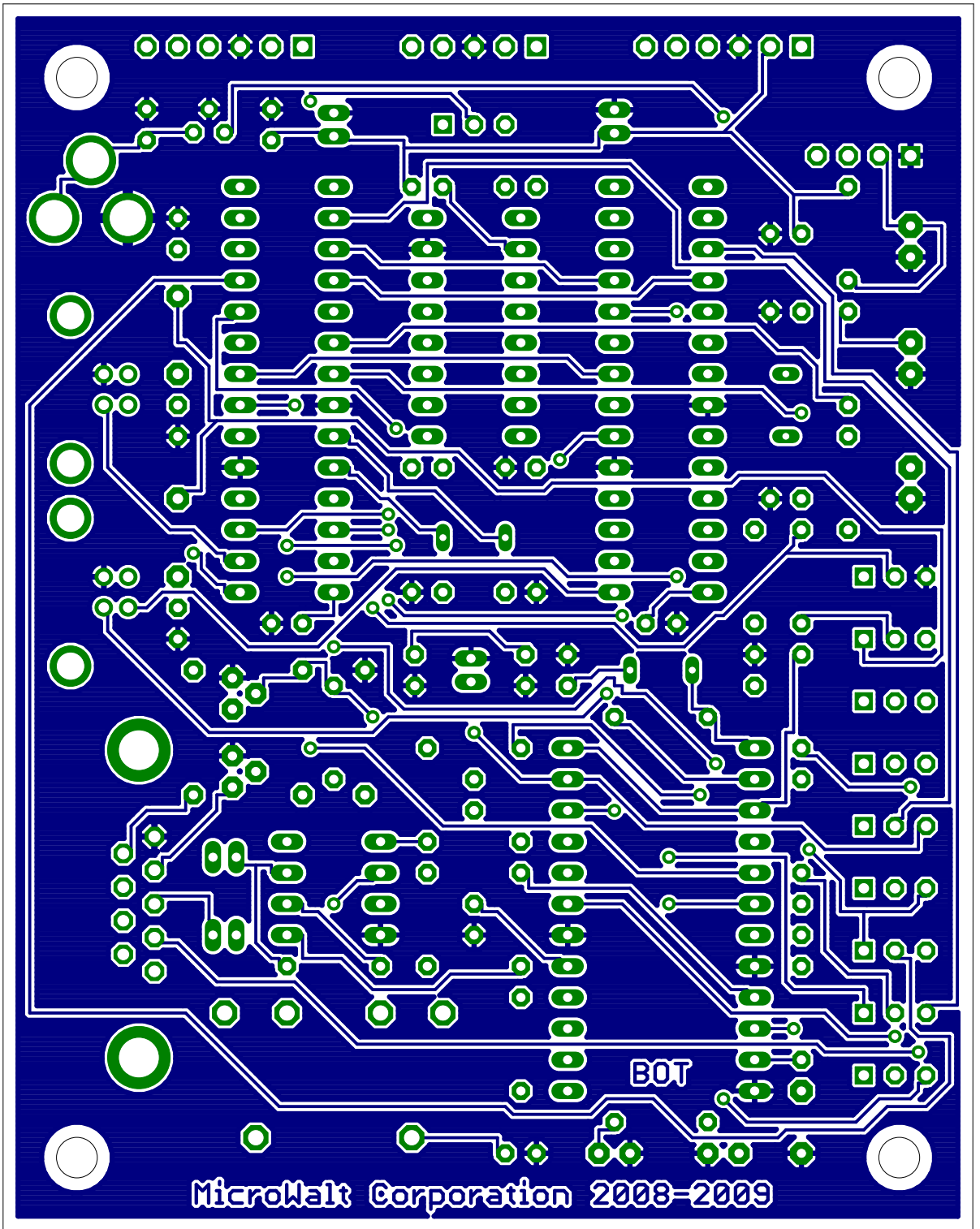
Qty	Value	Device	Parts
2	USBPTH	USBPTH	CN1, CN2
1	LEDS	PINHD-1X4	CN3
2	PICKIT	PINHD-1X6	CN4, CN5
1	RADIO	M09HP	CN6
1	NEB-21R	NEB-21R	CN7
1	SERIAL	PINHD-1X5	CN8
10		J2JP2	SW1, SW2, SW3, SW4, SW5, SW6, SW7, SW8, SW9, SW10
2	FB-110	FB-110	L1, L2
2	330	R_X0204/7	R17, R19
1	470	R_X0204/7	R15
5	47K	R_X0204/7	R1, R2, R3, R5, R12
4	100K	R_X0204/7	R4, R6, R11, R14
1	180K	R_X0204/7	R8
2	470K	R_X0204/7	R7, R9
2	1M	R_X0204/7	R10, R16
1	500K	TRIM_US-LI10	VR2
1	1M	TRIM_US-LI10	VR1
7	22p	C_C025-040X018	C9, C11, C16, C17, C18, C20, C23
1	330p	C_C025-040X018	C8
1	470p	C_C025-040X018	C12
2	22n	C_C025-050X025	C25, C26
13	100n	C_C025-040X018	C1, C3, C4, C5, C10, C14, C15, C19, C22, C27, C28, C29, C30
2	470n	C_C025-040X018	C13, C21
1	1uF	C_C050-075X040	C24
1	4.7u	CP_E-020X050	C32
2	10u	CP_E-020X050	C6, C31
2	47u	CP_E-020X050	C2, C7
3	1N4148	1N4148	D1, D2, D6
1	BLUE	LED5MM	D3
1	GREEN	LED5MM	D4
1	RED	LED5MM	D5

2	BC547	BC547	Q1, Q2
1	4.9152	XTAL/S	X1
2	24.0000	XTAL/S	X2, X3
1	78L05Z	78L05Z	U1
2	PIC18F2550-I/SP	PIC18F2550-I/SP	U2, U4
1	CMX589AP4	CMX589AP4	U3
1	MAX232AN	ADM3202AN	U5
1	LM4558N	LM4558N	U6









BOT

MicroWalt Corporation 2008-2009