
A9M9750DEV_1

Layout Version

Note: This layout version is for reference only.
Some parts may not be equipped or may have
different values.



FORTH-SYSTEME GMBH

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Power, Reset, JTAG/Multi-ICE
Configuration, User Push Buttons
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Expansion
Connectors
Page 3

CPLD, External UART, LCD,
Touch, Serial Headers
Page 5

Ethernet, RS232
IrDA, USB, CAN
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USB A9M9750: Host or Device
USB A9M9360: Host and Device
Page 7

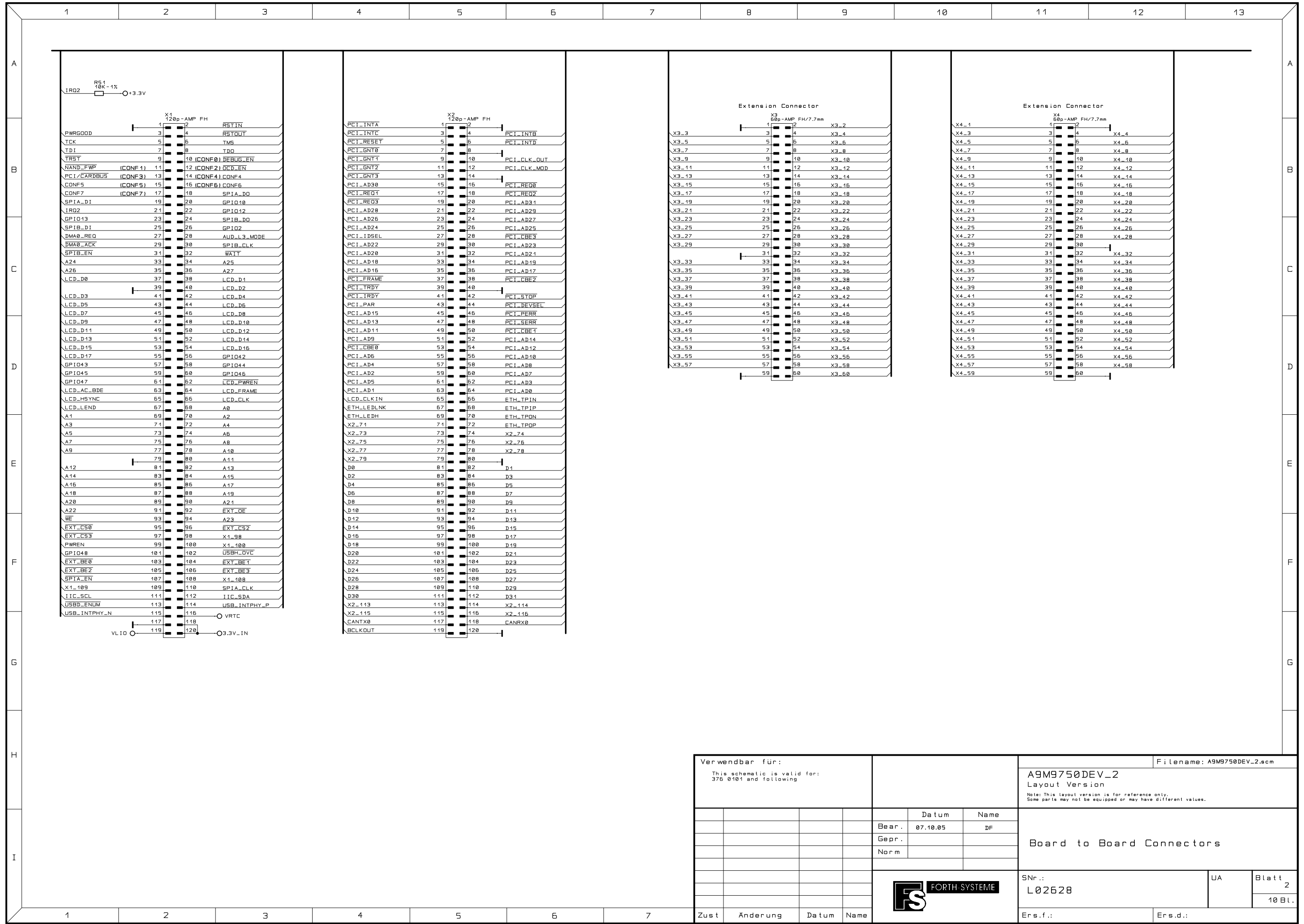
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Page 8

Compact-Flash
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FPGA and Configuration
Page 10

Board to Board Connectors
Page 2

| | | | | | |
|---|-----------|-------|------|--|--|
| Verwendbar für: This schematic is valid for: 375 0101 and following | | | | Filename: A9M9750DEV_2.scm | |
| | | | | A9M9750DEV_2 Layout Version <small>Note: This layout version is for reference only. Some parts may not be equipped or may have different values.</small> | |
| | | | | Overview | |
| | | | | SNr.: L02628 | |
| | | | | UA | |
| | | | | Blatt 1 10 Bl. | |
| | | | | Ers.f.: | |
| | | | | Ers.d.: | |
| Zust | Aenderung | Datum | Name |  | |

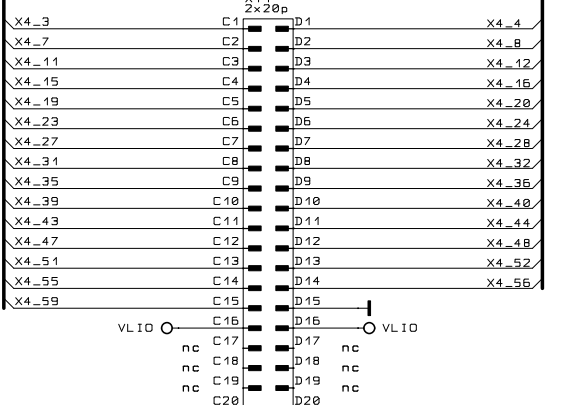
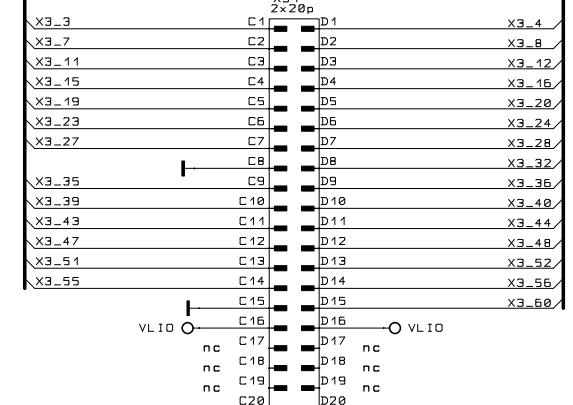
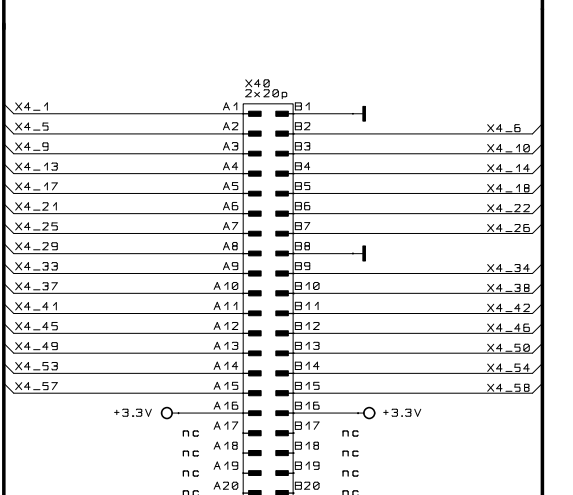
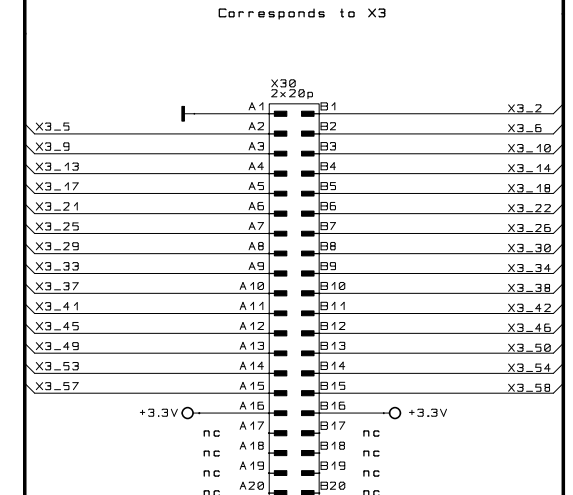
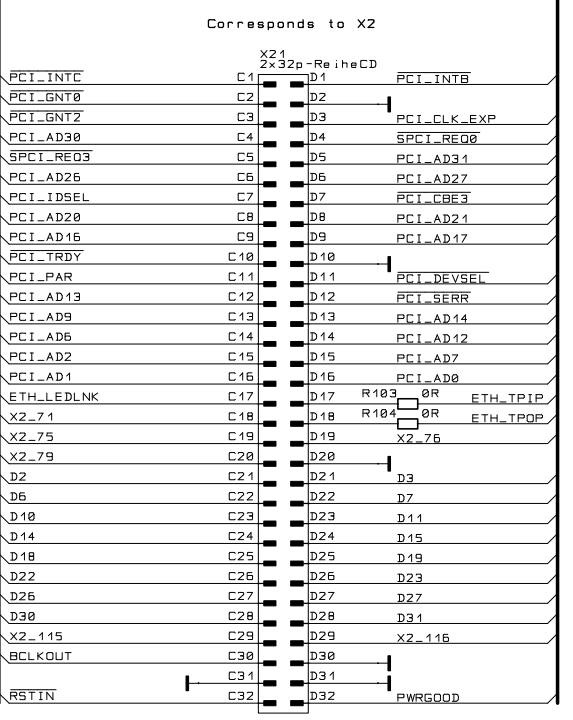
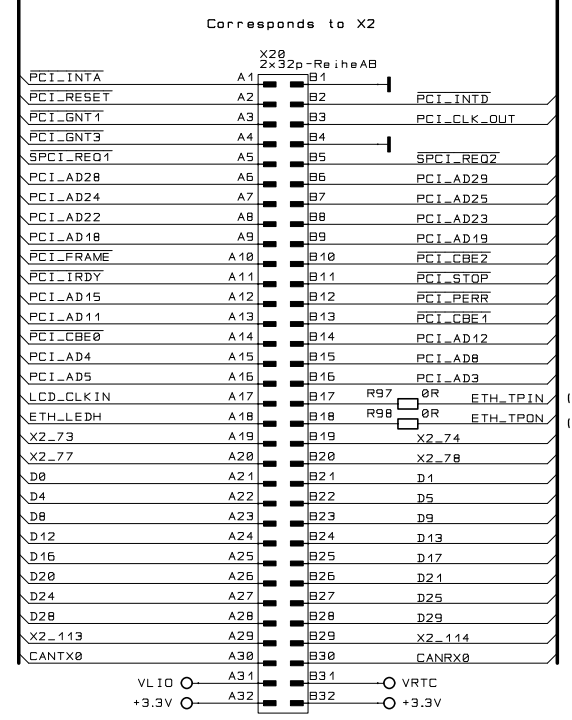
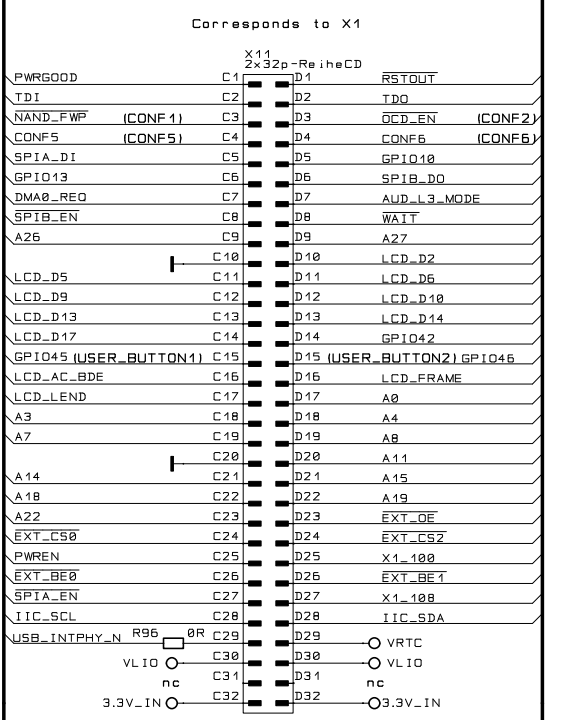
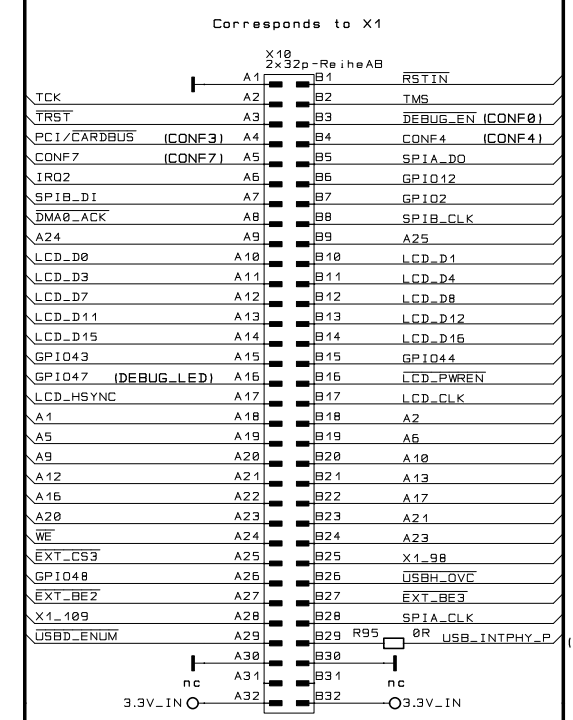


| | | | |
|---|----------|--|---------|
| Verwendbar für: This schematic is valid for: 375 0101 and following | | Dateiname: A9M9750DEV_2.scm | |
| | | A9M9750DEV_2 Layout Version | |
| | | Note: This layout version is for reference only. Some parts may not be equipped or may have different values. | |
| | Datum | Name | |
| Bear. | 07.10.05 | DF | |
| Gepr. | | | |
| Norm | | | |
| | | Board to Board Connectors | |
| | | SNr.: | UA |
| | | L02628 | Blatt 2 |
| | | 10 Bl. | |
| Zust | Anderung | Datum | Name |
| | | | |
| Ers.f.: | | Ers.d.: | |



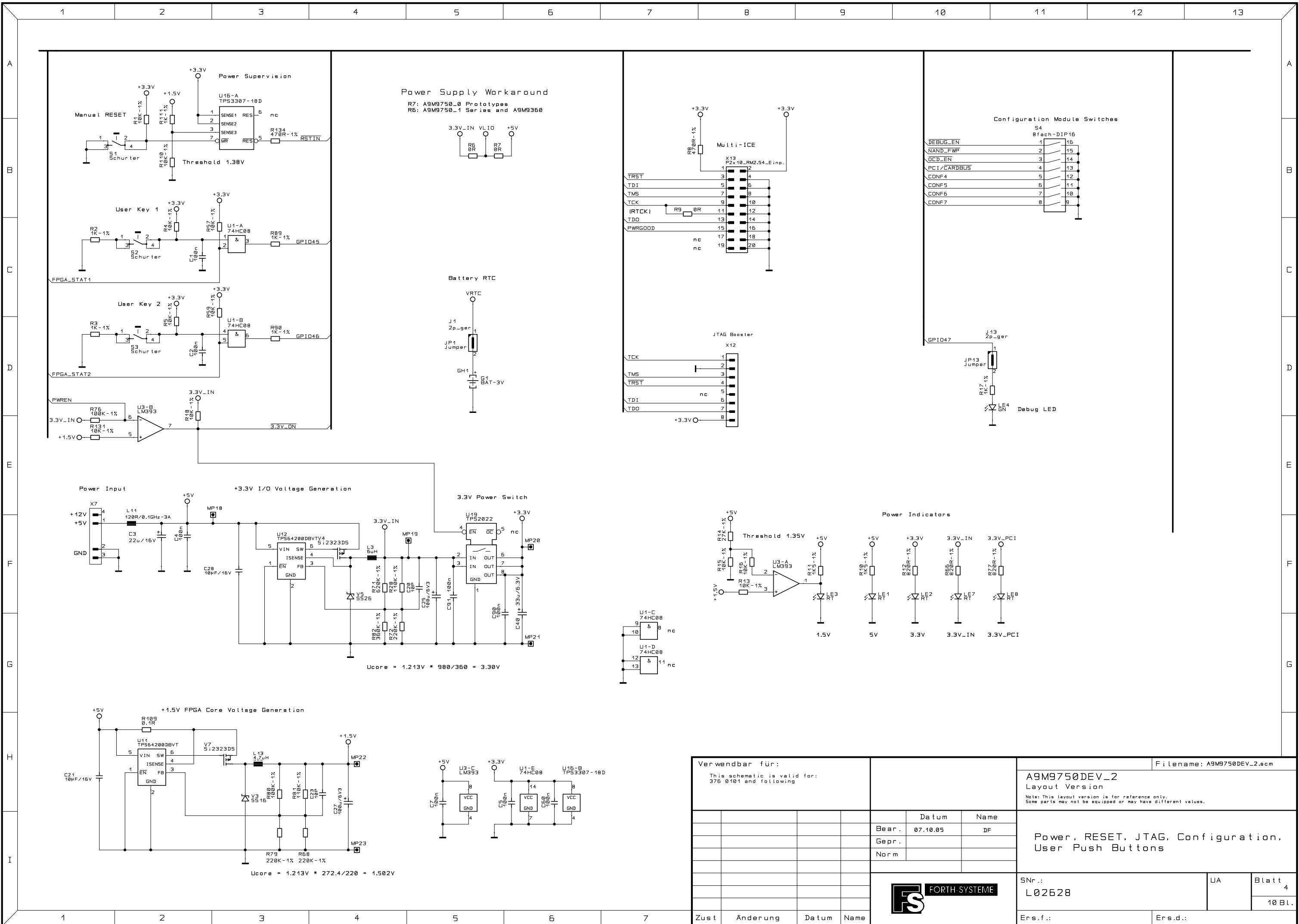
A
B
C
D
E
F
G
H
I

A
B
C
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F
G
H
I



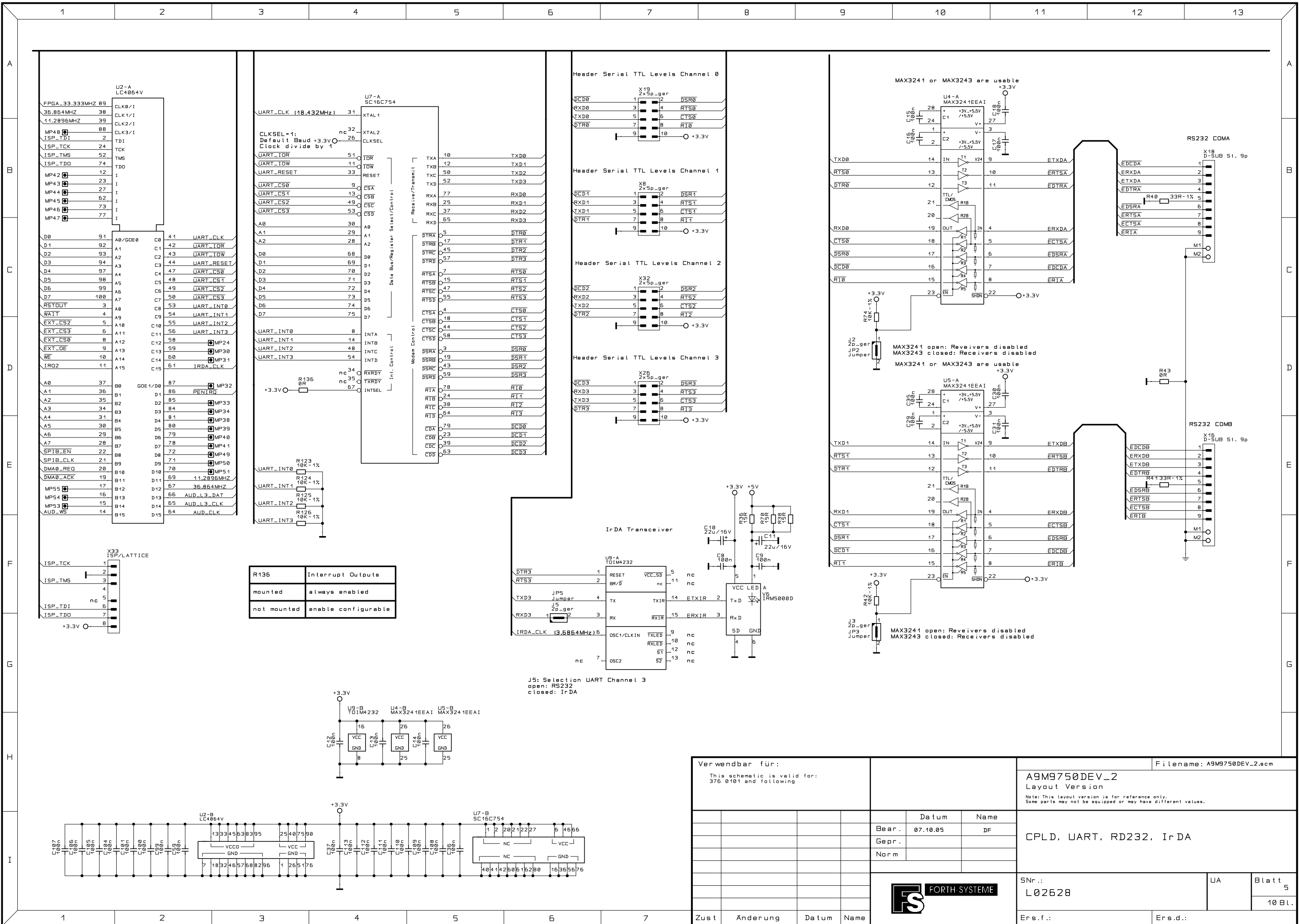
(*ETH*): Resistors as near as possible to X2
Resistors R97, R98, R103, R104
should be removed, if there are problems
with signal integrity on Ethernet

| | | | | | | | |
|---|--|----------------|--|---------------|--|----------------------------|--|
| Verwendbar für: This schematic is valid for: 376 0101 and following | | Date: 07.10.05 | | Name: DF | | Filename: A9M9750DEV_2.scm | |
| Zust: | | Anderung: | | Datum: | | Name: | |
| Ers.f.: | | Ers.d.: | | SNr.: L02628 | | UA: UA | |
| Blatt 3 | | 10 Bl. | | FORTH-SYSTEME | | Expansion Connectors | |

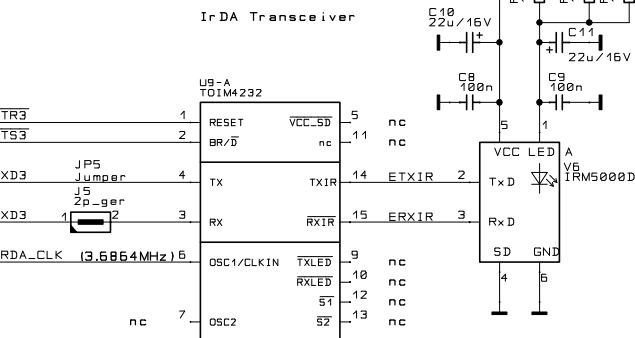


| | | | |
|--|----------|--|---------|
| Verwendbar für: | | Dateiname: A9M9750DEV_2.scm | |
| This schematic is valid for: 376 0101 and following | | A9M9750DEV_2 Layout Version | |
| | | Note: This layout version is for reference only. Some parts may not be equipped or may have different values. | |
| | Datum | Name | |
| Bear. | 07.10.05 | DF | |
| Gepr. | | | |
| Norm | | | |
| | | Power, RESET, JTAG, Configuration, User Push Buttons | |
| | | SNr.: | UA |
| | | L02628 | Blatt 4 |
| | | 10 Bl. | |
| Zust | Anderung | Datum | Name |
| | | Ers.f.: | Ers.d.: |

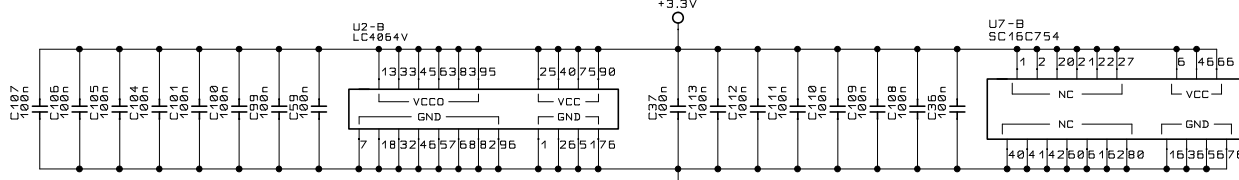
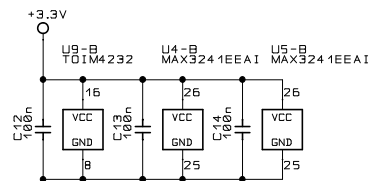




| | |
|-------------|---------------------|
| R136 | Interrupt Outputs |
| mounted | always enabled |
| not mounted | enable configurable |

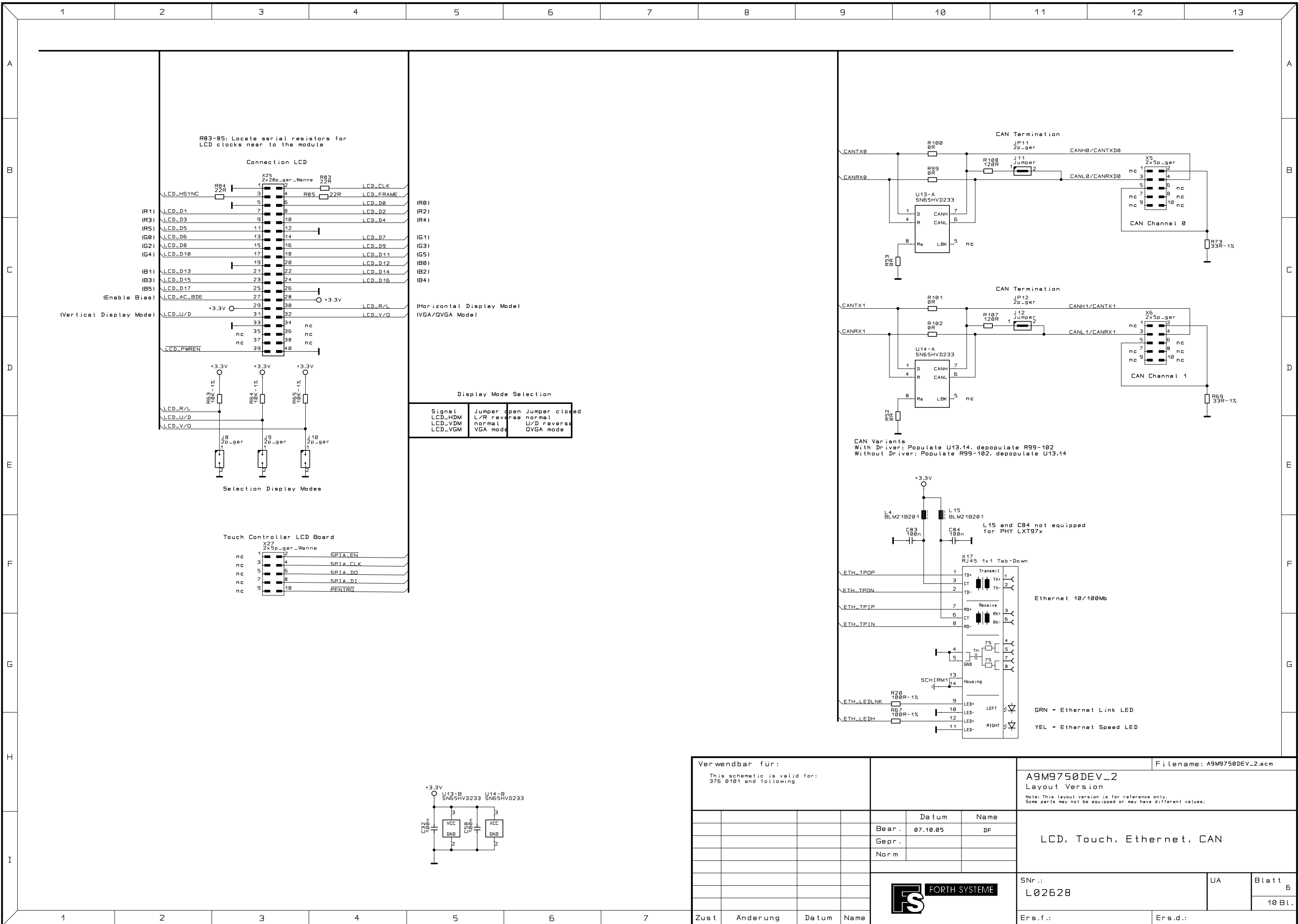


J5: Selection UART Channel 3
open: RS232
closed: Ir-DA



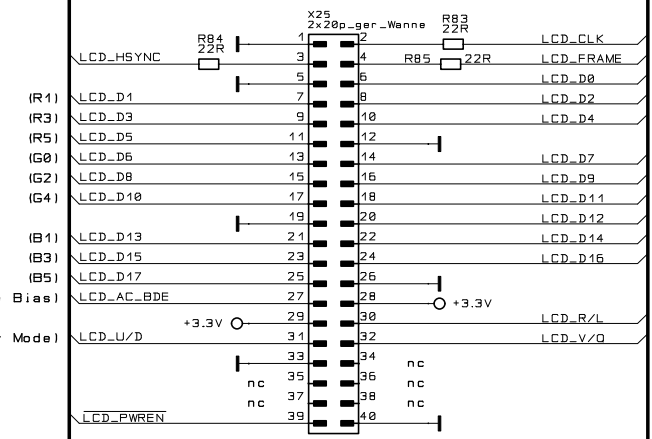
| | | | | | |
|--|--|------|--|--|--|
| Verwendbar für: | | | | Dateiname: A9M9750DEV_2.scm | |
| This schematic is valid for: 375 0101 and following | | | | A9M9750DEV_2 Layout Version | |
| | | | | Note: This layout version is for reference only. Some parts may not be equipped or may have different values. | |
| Datum | | Name | | CPLD, UART, RD232, Ir-DA | |
| Bear. 07.10.05 | | DF | | | |
| Gepr. | | Norm | | | |
| Zust | | | | Snr.: L02628 | |
| Änderung | | | | UA | |
| Datum | | | | Blatt 5 | |
| Name | | | | 10 Bl. | |
| Ers.f.: | | | | Ers.d.: | |





R83-R85: Locate serial resistors for LCD clocks near to the module

Connection LCD



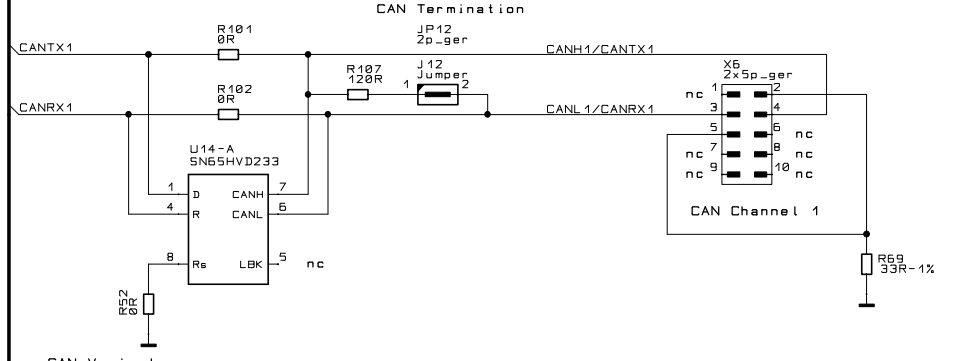
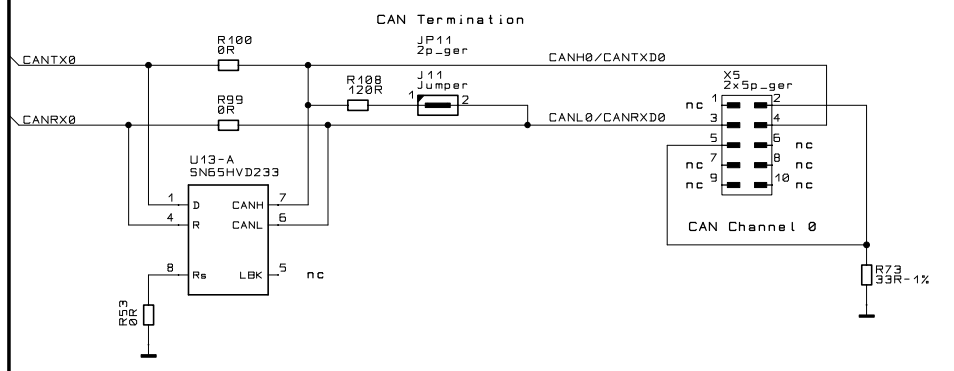
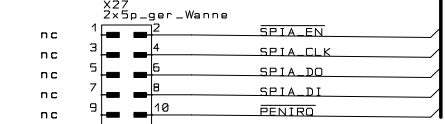
(Horizontal Display Mode)
IVGA/OVGA Mode)

Display Mode Selection

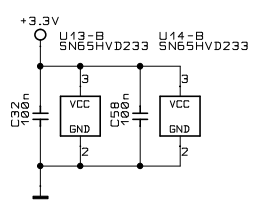
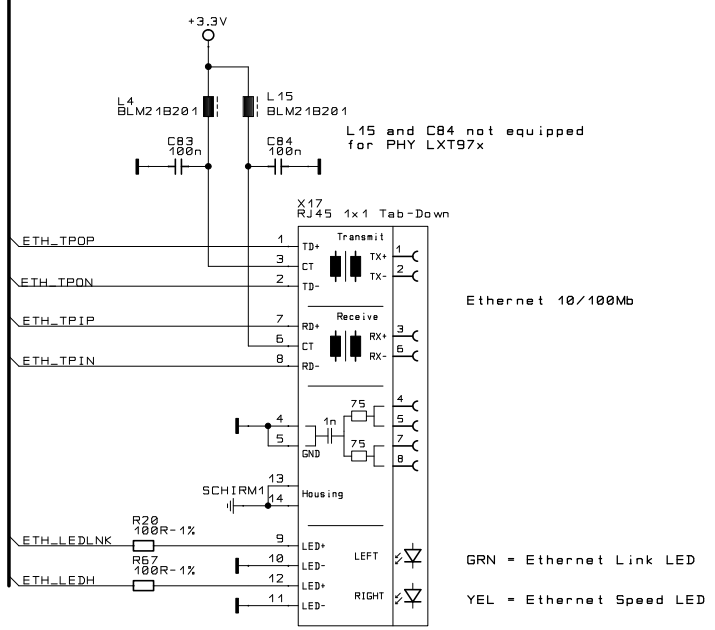
| Signal | Jumper open | Jumper closed |
|---------|-------------|---------------|
| LCD_HDM | L/R reverse | normal |
| LCD_VDM | normal | U/D reverse |
| LCD_VGM | VGA mode | OVGA mode |

Selection Display Modes

Touch Controller LCD Board

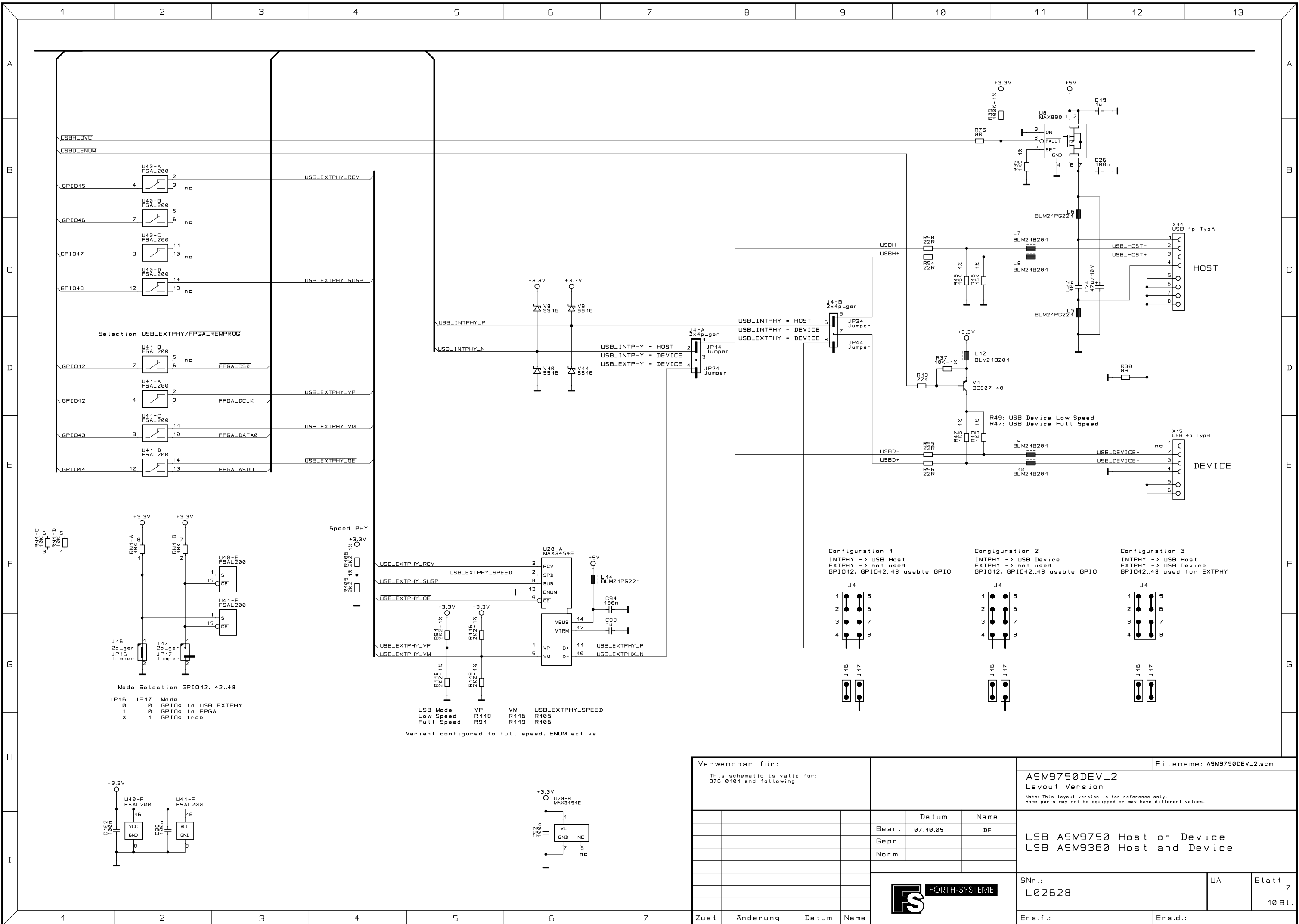


CAN Variants
With Driver: Populate U13,14, depopulate R99-102
Without Driver: Populate R99-102, depopulate U13,14



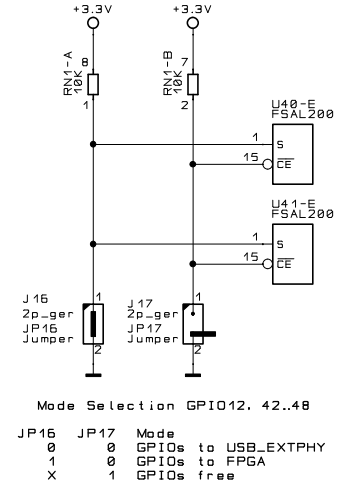
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|---|----------------|--|------------|
| Verwendbar für: This schematic is valid for: 376 0101 and following | | Dateiname: A9M9750DEV_2.scm | |
| | | A9M9750DEV_2 Layout Version | |
| | | Note: This layout version is for reference only. Some parts may not be equipped or may have different values. | |
| | Datum | Name | |
| | Bear. 07.10.05 | DF | |
| | Gepr. | | |
| | Norm | | |
| | | LCD, Touch, Ethernet, CAN | |
| | | SNr.: L02628 | UA Blatt 6 |
| | | | 10 Bl. |
| Zust | Anderung | Datum | Name |
| | | | |
| | | Ers.f.: | Ers.d.: |





Selection USB_EXTPHY/FPGA_REMPROG

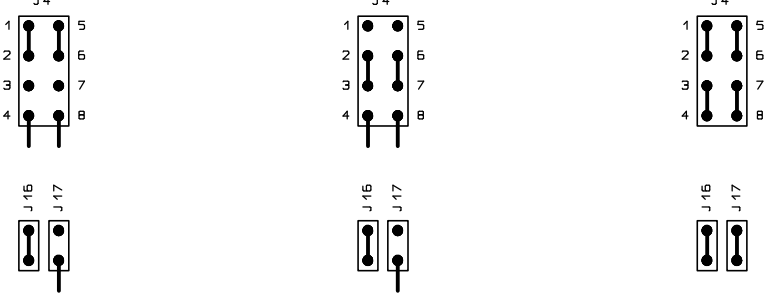
| | | | | |
|--------|---------------|----|----|------------|
| GPIO45 | U40-A FSAL200 | 2 | 3 | nc |
| GPIO46 | U40-B FSAL200 | 5 | 6 | nc |
| GPIO47 | U40-C FSAL200 | 11 | 10 | nc |
| GPIO48 | U40-D FSAL200 | 14 | 13 | nc |
| GPIO12 | U41-B FSAL200 | 5 | 6 | FPGA_CS0 |
| GPIO42 | U41-A FSAL200 | 2 | 3 | FPGA_DCLK |
| GPIO43 | U41-C FSAL200 | 11 | 10 | FPGA_DATA0 |
| GPIO44 | U41-D FSAL200 | 14 | 13 | FPGA_ASDD |



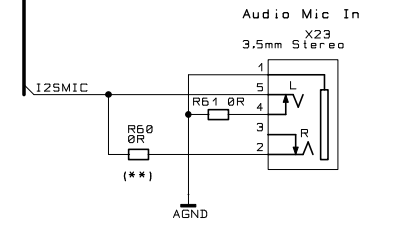
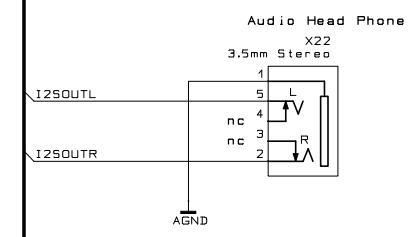
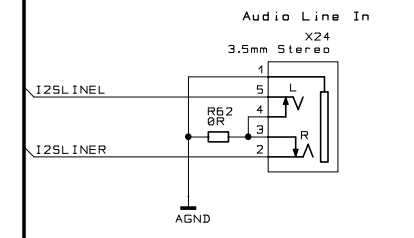
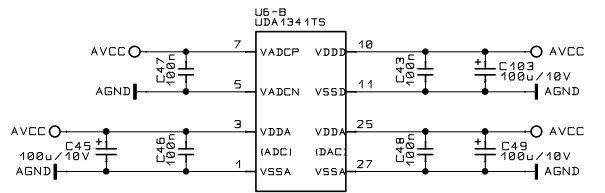
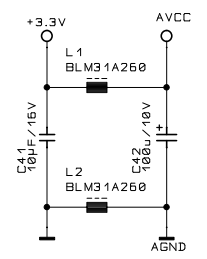
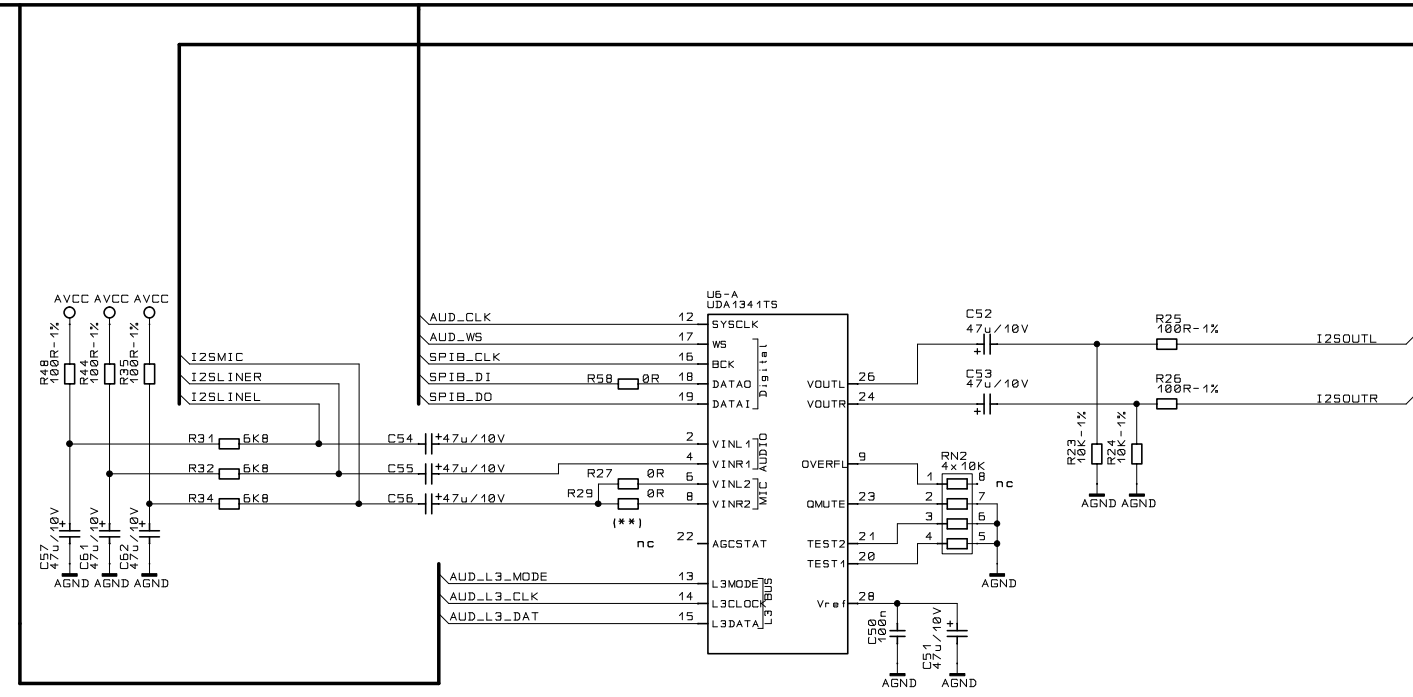
| USB Mode | VP | VM | USB_EXTPHY_SPEED |
|------------|------|------|------------------|
| Low Speed | R118 | R115 | R105 |
| Full Speed | R91 | R119 | R106 |

Variant configured to full speed, ENUM active

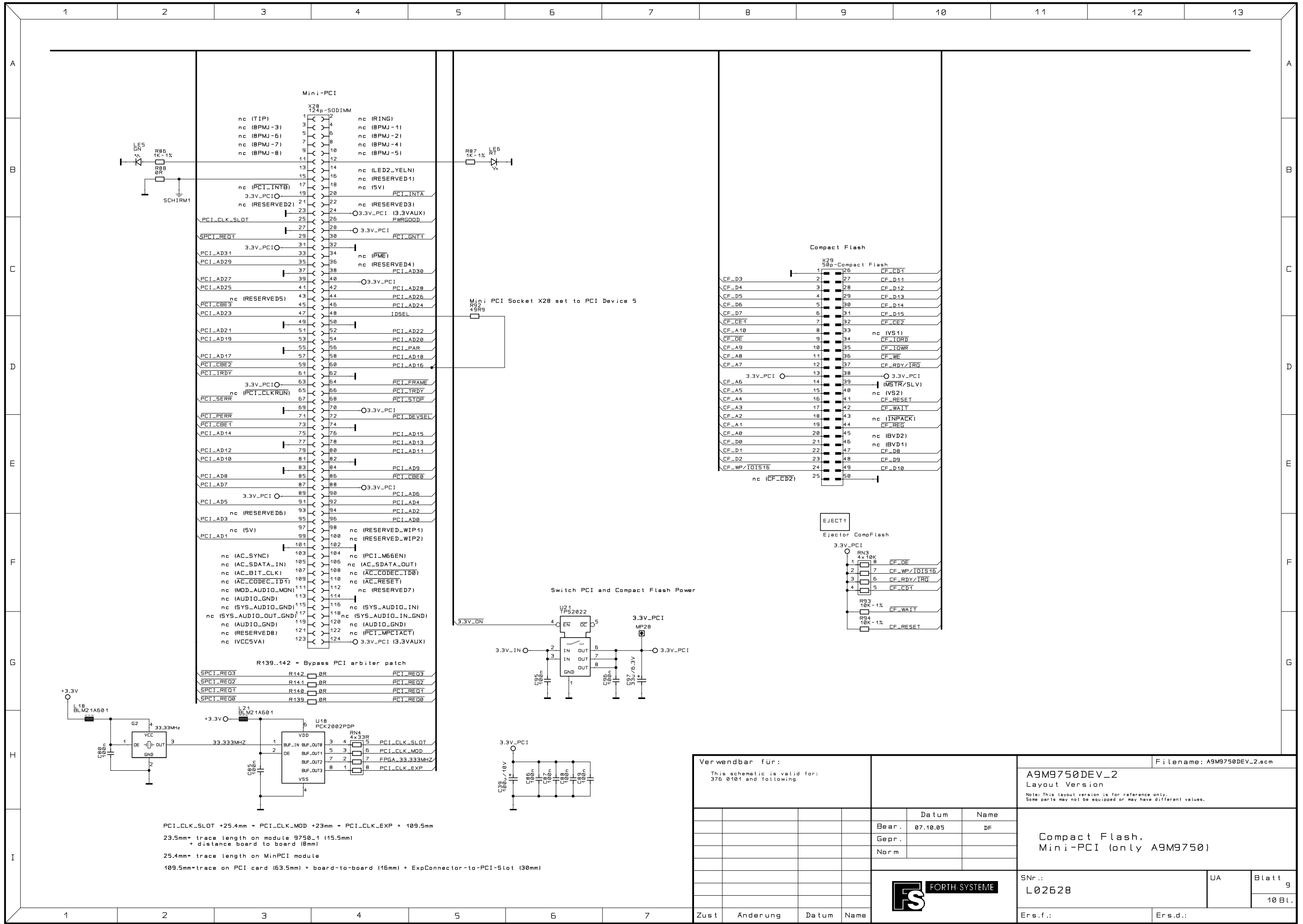
| Configuration 1 | Configuration 2 | Configuration 3 |
|--|--|--|
| INTPHY -> USB Host EXTPHY -> not used GPIO12, GPIO42..48 usable GPIO | INTPHY -> USB Device EXTPHY -> not used GPIO12, GPIO42..48 usable GPIO | INTPHY -> USB Host EXTPHY -> USB Device GPIO12, GPIO42..48 used for EXTPHY |



| | | | | | |
|---|----------|------|--|--|--|
| Verwendbar für: This schematic is valid for: 376 0101 and following | | | | Filename: A9M9750DEV_2.scm | |
| A9M9750DEV_2 Layout Version | | | | Note: This layout version is for reference only. Some parts may not be equipped or may have different values. | |
| Datum | | Name | | USB A9M9750 Host or Device USB A9M9360 Host and Device | |
| Bear. | 07.10.05 | DF | | | |
| Gepr. | | | | | |
| Norm | | | | | |
| Zust | | | | Ers.f.: | |
| Anderung | | | | Ers.d.: | |
| Datum | | | | Name | |
| | | | | Snr.: L02628 | |
| | | | | UA | |
| | | | | Blatt 7 | |
| | | | | 10 Bl. | |
| FORTH-SYSTEME | | | | | |



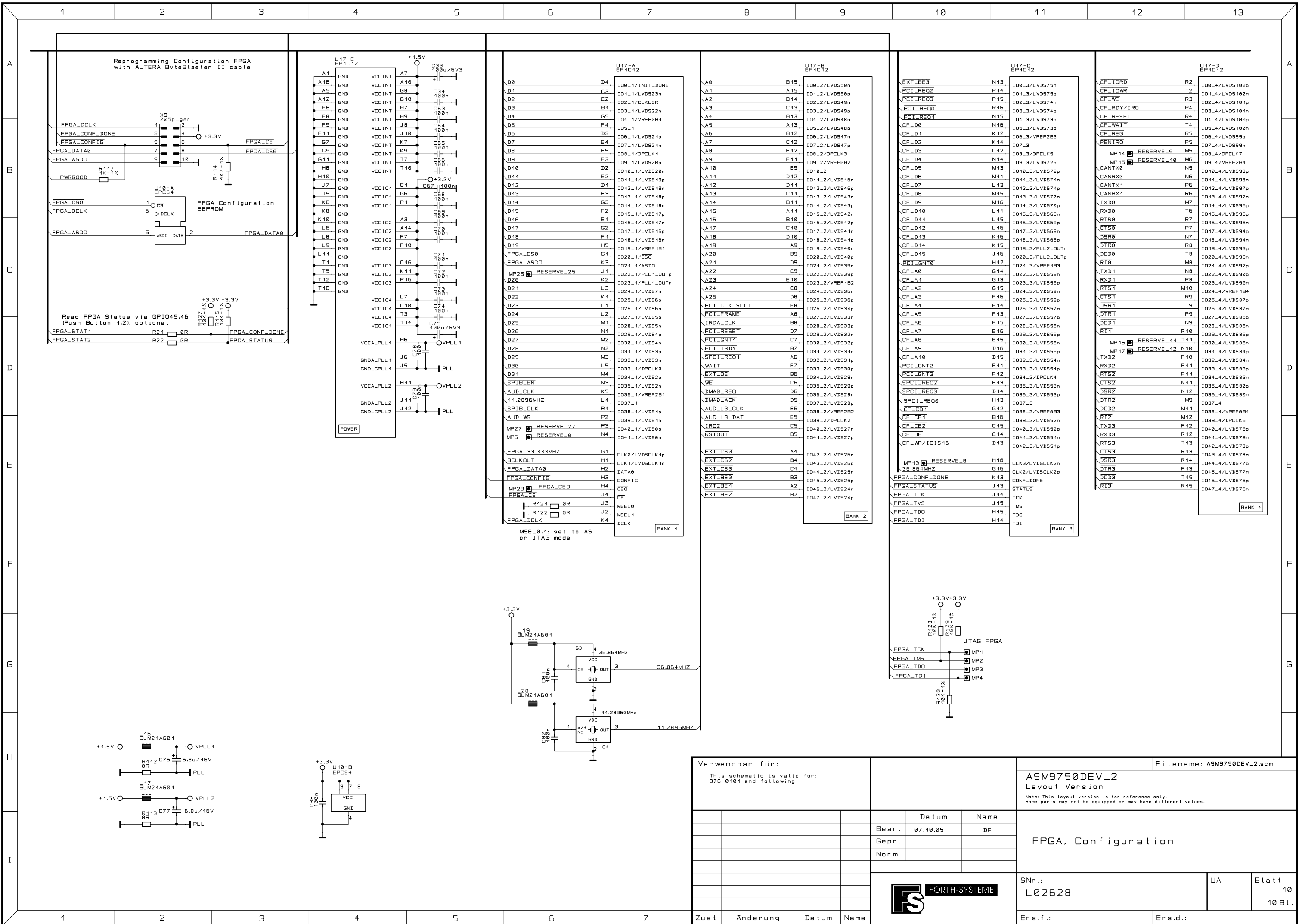
| | | | | | |
|-----------------|----------|--|------|--|---------|
| Verwendbar für: | | This schematic is valid for: 375 0101 and following | | Filename: A9M9750DEV_2.scm | |
| | | | | A9M9750DEV_2 Layout Version | |
| | | | | Note: This layout version is for reference only. Some parts may not be equipped or may have different values. | |
| | | Datum | Name | Audio | |
| | Bear . | 07.10.05 | DF | | |
| | Gepr . | | | | |
| | Norm | | | | |
| | | | | SNr.: | UA |
| | | | | L02628 | |
| | | | | 10 Bl. | |
| Zust | Anderung | Datum | Name | Ers.f.: | Ers.d.: |



PCI_CLK_SLOT +25.4mm = PCI_CLK_MOD +23mm = PCI_CLK_EXP + 109.5mm
 23.5mm = trace length on module 9750_1 (15.5mm)
 + distance board to board (8mm)
 25.4mm = trace length on MiniPCI module
 109.5mm = trace on PCI card (63.5mm) + board-to-board (16mm) + ExpConnector-to-PCI-Slot (30mm)

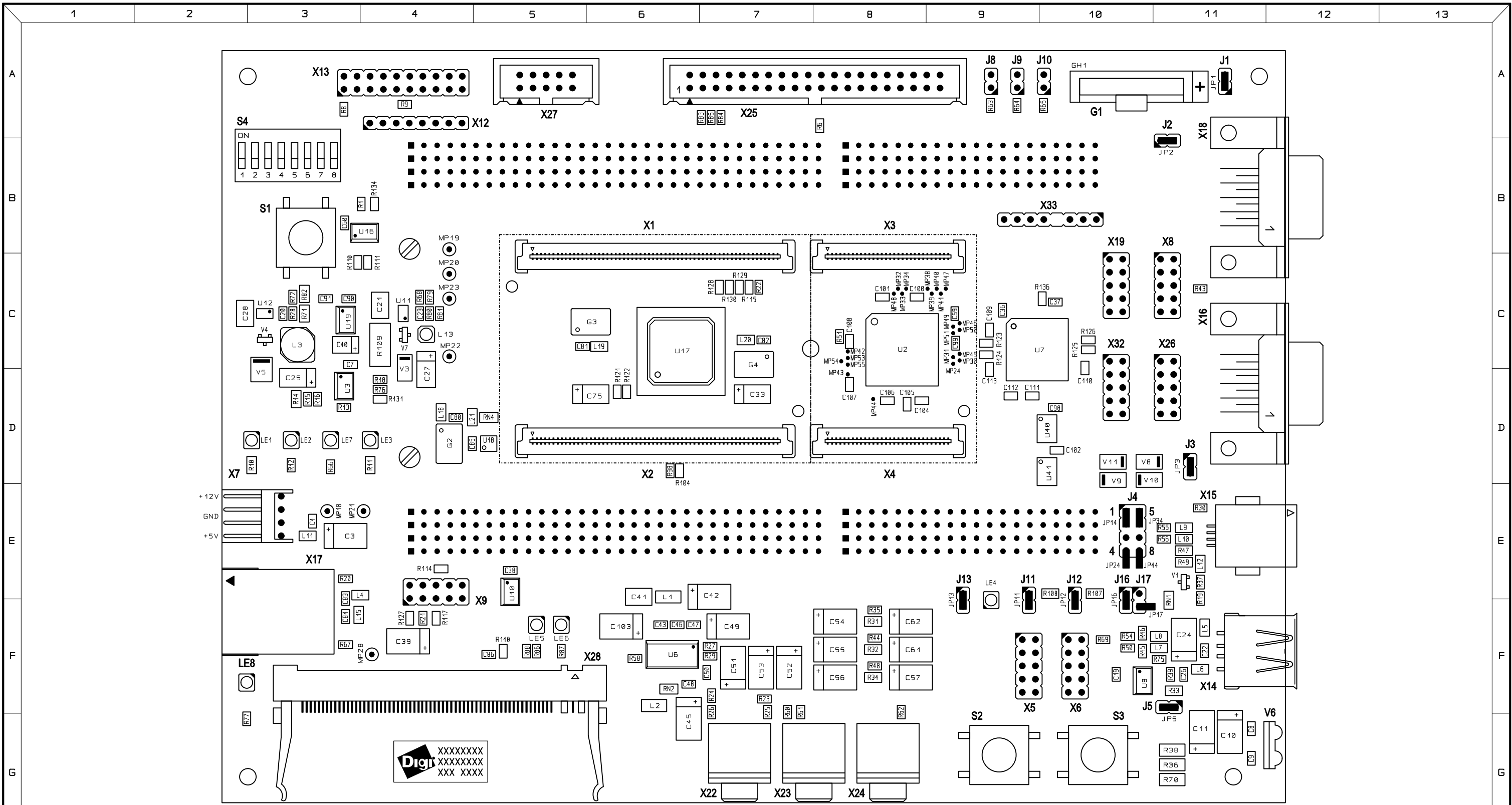
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|--|----------------|--|------------|
| Verwendbar für: | | Dateiname: A9M9750DEV_2.scm | |
| This schematic is valid for: 375 0101 and following | | A9M9750DEV_2 Layout Version | |
| | | Note: This layout version is for reference only. Some parts may not be equipped or may have different values. | |
| | Datum | Name | |
| | Bear. 07.10.05 | DF | |
| | Gepr. | | |
| | Norm | | |
| | | Compact Flash, Mini-PCI (only A9M9750) | |
| | | Snr.: L02628 | UA Blatt 9 |
| | | Ers.f.: | Ers.d.: |
| Zust | Änderung | Datum | Name |



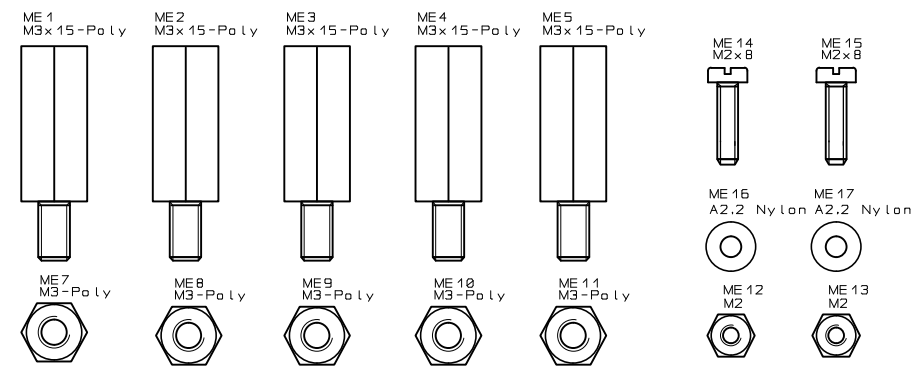


| | | | |
|--|----------|--|----------|
| Verwendbar für: | | Dateiname: A9M9750DEV_2.scm | |
| This schematic is valid for: 375 0101 and following | | A9M9750DEV_2 Layout Version | |
| | | Note: This layout version is for reference only. Some parts may not be equipped or may have different values. | |
| | Datum | Name | |
| Bear. | 07.10.05 | DF | |
| Gepr. | | | |
| Norm | | | |
| | | FPGA, Configuration | |
| | | Snr.: | UA Blatt |
| | | L02628 | 10 |
| Zust | Anderung | Datum | Name |
| | | Ers.f.: | Ers.d.: |





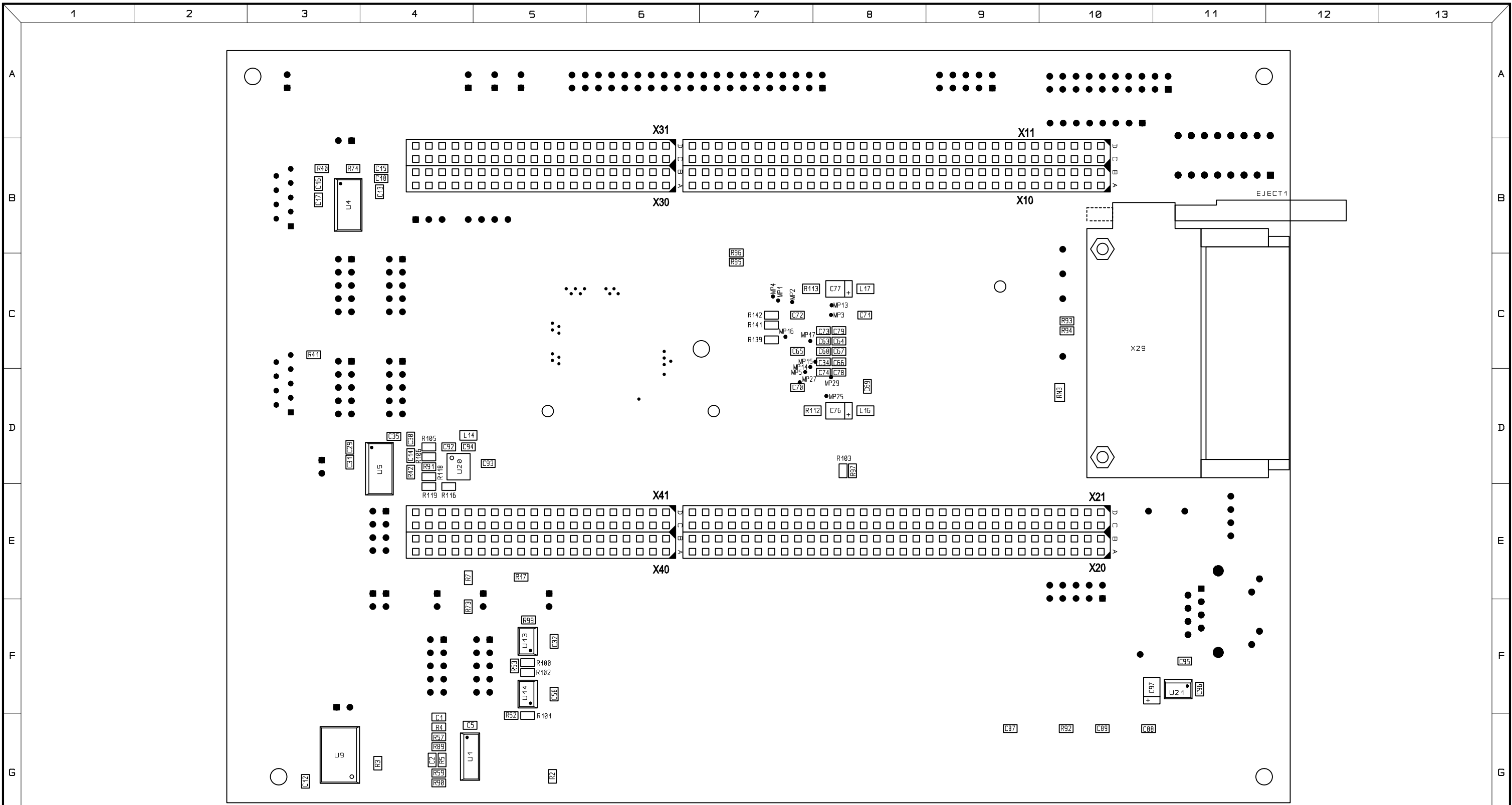
A9M9750DEV_2 Placement TOP 06.10.05




| | | | | | |
|---|----------|--------------------------------|--|--|---------|
| Verwendbar für: This PCB is valid for: 376 0101 and following | | Masstab | | Filename: A9M9750DEV_2.pcb | |
| | | A9M9750DEV_2 Layout Version | | Note: This layout version is for reference only. Some parts may not be equipped or may have different values. | |
| | Datum | Name | | | |
| Bear. | 07.10.05 | SC | | | |
| Gepr. | | | | Placement TOP Side | |
| Norm | | | | | |
| | | SNr.: | | UA | Blatt 1 |
| | | L02628 | | | 2 Bl. |
| | | Ers.f.: | | Ers.d.: | |

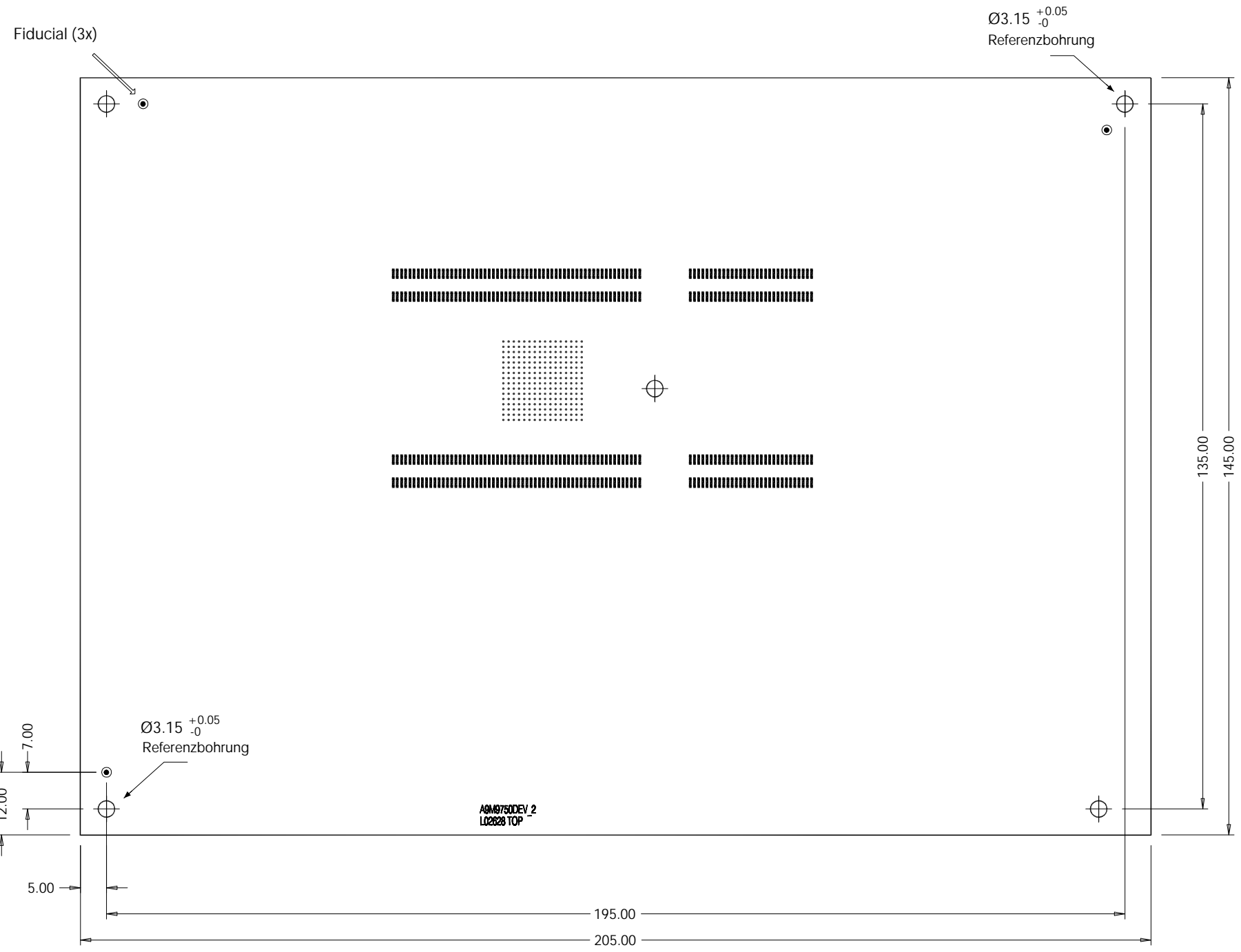


| | | | |
|-------|----------|-------|------|
| Zust. | Änderung | Datum | Name |
|-------|----------|-------|------|




A9M9750DEV_2 Placement BOTTOM Side 06.10.05

| | | | | | | | |
|---|----------|-------|------|---|--|--|--|
| Verwendbar für: This PCB is valid for: 376 0101 and following | | | | Masstab | | Filename: A9M9750DEV_2.pcb | |
| | | | | A9M9750DEV_2 Layout Version | | Note: This layout version is for reference only. Some parts may not be equipped or may have different values. | |
| | | | | Datum | | Name | |
| | | | | Bear. 07.10.05 | | SC | |
| | | | | Gepr. | | | |
| | | | | Norm | | | |
| | | | |  | | SNr.: | |
| | | | | | | L02628 | |
| | | | | UA | | Blatt 2 | |
| | | | | 2 Bl. | | | |
| Zust. | Änderung | Datum | Name | Ers.f.: | | Ers.d.: | |



BEACHTEN:
 Versatz der Referenzbohrungen zu den Fiducials <=0,08mm.
 Versatz der Fräskontur zu den Fiducials ±0,2mm.
 DK- und NDK-Bohrungen in einem Arbeitsgang bohren!

| | | | | | |
|------------------------|----------|---------------------------------|------|---|------------------------------|
| Alle Maßangaben in mm. | | Allgemein-Toleranzen ± 0,2mm | | Maßstab 1:1 | Filename A9M9750DEV_2_LP.DWG |
| | | | | A9M9750DEV_2 | |
| | | | | Dimensions TOP | |
| | | | | SNR. | Blatt 1 |
| | | | | L02628 | 1 Bl. |
| | | | | Ers. für: | Ers. durch: |
| Zust. | Änderung | Datum | Name |  | |