

PDNode-600Pro

Rev 1.0.0

BladeCore-M54

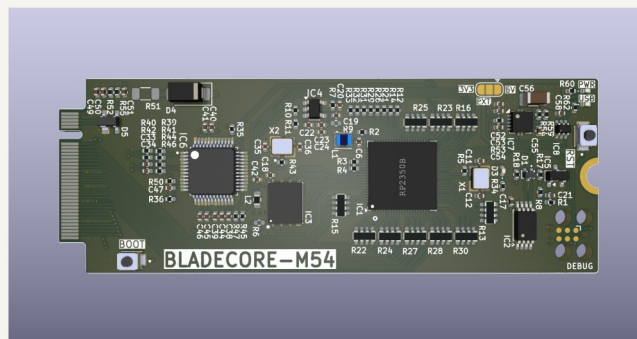
Variant: Pro

07.02.2026

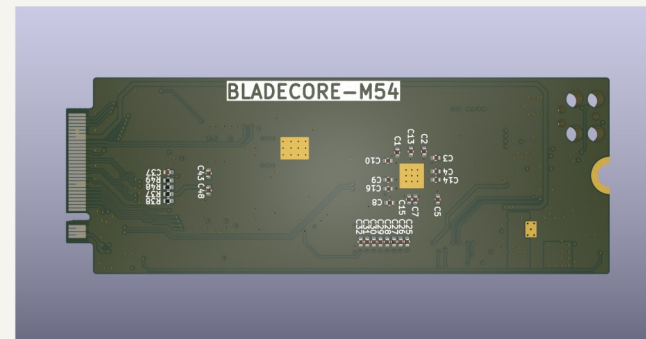
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PCB TOP VIEW



PCB BOTTOM VIEW



NOTES

Not fitted components are marked as **X**

VERSION:

DRAFT - Very early stage of schematic, ignore details.

PRELIMINARY - Close to final schematic.

CHECKED - There shouldn't be any mistakes. Contact the engineer if you find any.

RELEASED - A board with this schematic has been sent to production.

| | | | | |
|--|------------------|---------------------------------------|---------------------------------|---------------------|
| | Comments: | Company: DvidMakesThings | Variant: Pro | Git Hash: |
| | | Board Name: BladeCore-M54 | Project Name: PDNode-600 Pro | |
| | Sheet Title: | File Name: BladeCore-M54.kicad_sch | Designer: David Sipos | Date: 2026-02-05 |
| | Sheet Path: / | Reviewer: | Size: A3 | Revision: 1.0.0 |

Block Diagram

File: Project Architecture.kicad_sch

Revision History

File: Revision History.kicad_sch

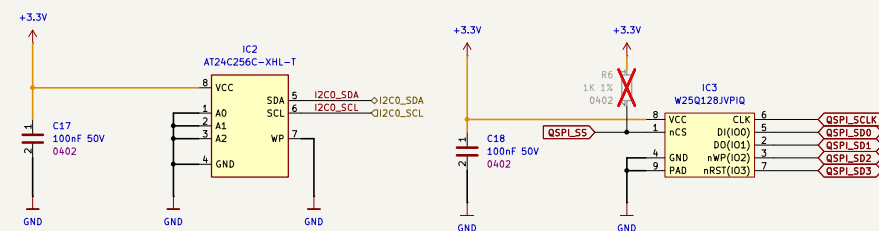
[illegible]

| | | | | |
|--------------------------------------|--|--------------------------|---------------------------------|--------------------|
| Comments: | Company: DroidMakersThings | | Variant: Pro | Git Hash: |
| | Board Name: BladeCore-M54 | | Project Name: PDNode-600 Pro | |
| Sheet Title: Project Architecture | File Name: Project Architecture.kicad_sch | Designer: David Sipos | Date: 2026-02-05 | Revision: 1.0.0 |
| Sheet Path: /Block Diagram/ | | Reviewer: | Size: A3 | Sheet: 2 of 7 |

RP2354B MICROCONTROLLER



EXTERNAL EEPROM



| | | | | |
|---|--|--|------------|----------------------|
| Comments: | Company: | Variant: | | Git Hash: |
| | DavidMakesThings Board Name: BladeCore-M54 | Project Name: PDNode-600 Pro | | |
| Sheet Title: | File Name: | Designer: | Date: | Revision: |
| Microcontroller Peripherals | microcontroller_peripherals.kicad_sch | David Sipos | 2026-02-05 | 1.0.0 |
| Sheet Path: | Reviewer: | | Size: | Sheet: |
| /Block Diagram/Microcontroller Peripherals/ | | | A3 | 3 of 7 |

Microcontroller

RP2354B GPIO ASSIGNMENT

| GPIO Pin | Function |
|----------|-----------|
| GPIO0 | I2C0_SDA |
| GPIO1 | I2C0_SCL |
| GPIO2 | I2C0_SDA |
| GPIO3 | I2C0_SCL |
| GPIO4 | I2C0_SDA |
| GPIO5 | I2C0_SCL |
| GPIO6 | I2C0_SDA |
| GPIO7 | I2C0_SCL |
| GPIO8 | I2C0_SDA |
| GPIO9 | I2C0_SCL |
| GPIO10 | I2C0_SDA |
| GPIO11 | I2C0_SCL |
| GPIO12 | I2C0_SDA |
| GPIO13 | I2C0_SCL |
| GPIO14 | I2C0_SDA |
| GPIO15 | I2C0_SCL |
| GPIO16 | ADC0 |
| GPIO17 | ADC1 |
| GPIO18 | ADC2 |
| GPIO19 | ADC3 |
| GPIO20 | ADC4 |
| GPIO21 | ADC5 |
| GPIO22 | ADC6 |
| GPIO23 | ADC7 |
| GPIO24 | I2C0_SDA |
| GPIO25 | I2C0_SCL |
| GPIO26 | I2C0_SDA |
| GPIO27 | I2C0_SCL |
| GPIO28 | I2C0_SDA |
| GPIO29 | I2C0_SCL |
| GPIO30 | I2C0_SDA |
| GPIO31 | I2C0_SCL |
| GPIO32 | I2C0_SDA |
| GPIO33 | I2C0_SCL |
| GPIO34 | I2C0_SDA |
| GPIO35 | I2C0_SCL |
| GPIO36 | I2C0_SDA |
| GPIO37 | HEARTBEAT |
| GPIO38 | I2C0_SDA |
| GPIO39 | I2C0_SCL |
| GPIO40 | I2C0_SDA |
| GPIO41 | I2C0_SCL |
| GPIO42 | I2C0_SDA |
| GPIO43 | I2C0_SCL |
| GPIO44 | I2C0_SDA |
| GPIO45 | I2C0_SCL |
| GPIO46 | I2C0_SDA |
| GPIO47 | I2C0_SCL |

I2C PULLUP

HEARTBEAT LED

| Comments: | Company: | Variant: | Git Hash: |
|--------------------------------|---------------------------|-------------|------------|
| | DavidMakesThings | Pro | |
| Sheet Title: | File Name: | Designer: | Date: |
| Microcontroller | microcontroller.kicad_sch | David Sipos | 2026-02-05 |
| Sheet Path: | Reviewer: | Size: | Revision: |
| /Block Diagram/Microcontroller | | A3 | 4 of 7 |

Pinout diagram for the Raspberry Pi 4 Model B, showing connections for the 40-pin GPIO header. The diagram is divided into two main sections: the top section for pins 1-26 and the bottom section for pins 27-40. Each section shows the pin number, the pin's function (e.g., 1206, 100R 1X, R15, R22, R24, R27, R28, R30), and the corresponding pin number on the 40-pin header. The top section shows pins 1-26, and the bottom section shows pins 27-40. The diagram is color-coded: pins 1-26 are in a light blue box, and pins 27-40 are in a light red box. The 40-pin header is shown on the right, with pins 1-40 numbered. The diagram is labeled 'IC18 RP2354B' in the top right corner.

| Pin | Function | Header Pin |
|-----|----------|------------|
| 1 | 1206 | 1 |
| 2 | 100R 1X | 2 |
| 3 | R15 | 3 |
| 4 | 1206 | 4 |
| 5 | 100R 1X | 5 |
| 6 | R22 | 6 |
| 7 | 1206 | 7 |
| 8 | 100R 1X | 8 |
| 9 | R24 | 9 |
| 10 | 1206 | 10 |
| 11 | 100R 1X | 11 |
| 12 | R27 | 12 |
| 13 | 1206 | 13 |
| 14 | 100R 1X | 14 |
| 15 | R28 | 15 |
| 16 | 1206 | 16 |
| 17 | 100R 1X | 17 |
| 18 | R30 | 18 |
| 19 | 1206 | 19 |
| 20 | 100R 1X | 20 |
| 21 | R15 | 21 |
| 22 | 1206 | 22 |
| 23 | 100R 1X | 23 |
| 24 | R22 | 24 |
| 25 | 1206 | 25 |
| 26 | 100R 1X | 26 |
| 27 | 1206 | 27 |
| 28 | 100R 1X | 28 |
| 29 | R24 | 29 |
| 30 | 1206 | 30 |
| 31 | 100R 1X | 31 |
| 32 | R27 | 32 |
| 33 | 1206 | 33 |
| 34 | 100R 1X | 34 |
| 35 | R28 | 35 |
| 36 | 1206 | 36 |
| 37 | 100R 1X | 37 |
| 38 | R30 | 38 |
| 39 | 1206 | 39 |
| 40 | 100R 1X | 40 |

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|--|---|--------------------------|---------------------------------|--------------------|
| Comments: | Company: DvidMakesThings | | Variant: Pro | Git Hash: |
| | Board Name: BladeCore-M54 | | Project Name: PDNode-600 Pro | |
| Sheet Title: Microcontroller | File Name: microcontroller.kicad_sch | Designer: David Sipes | Date: 2026-02-05 | Revision: 1.0.0 |
| Sheet Path: /Block Diagram/Microcontroller/ | | Reviewer: | Size: A3 | Sheet: 4 of 7 |

Ethernet Interface

W5500 ETHERNET CONTROLLER WITH PHY

DECOUPLING

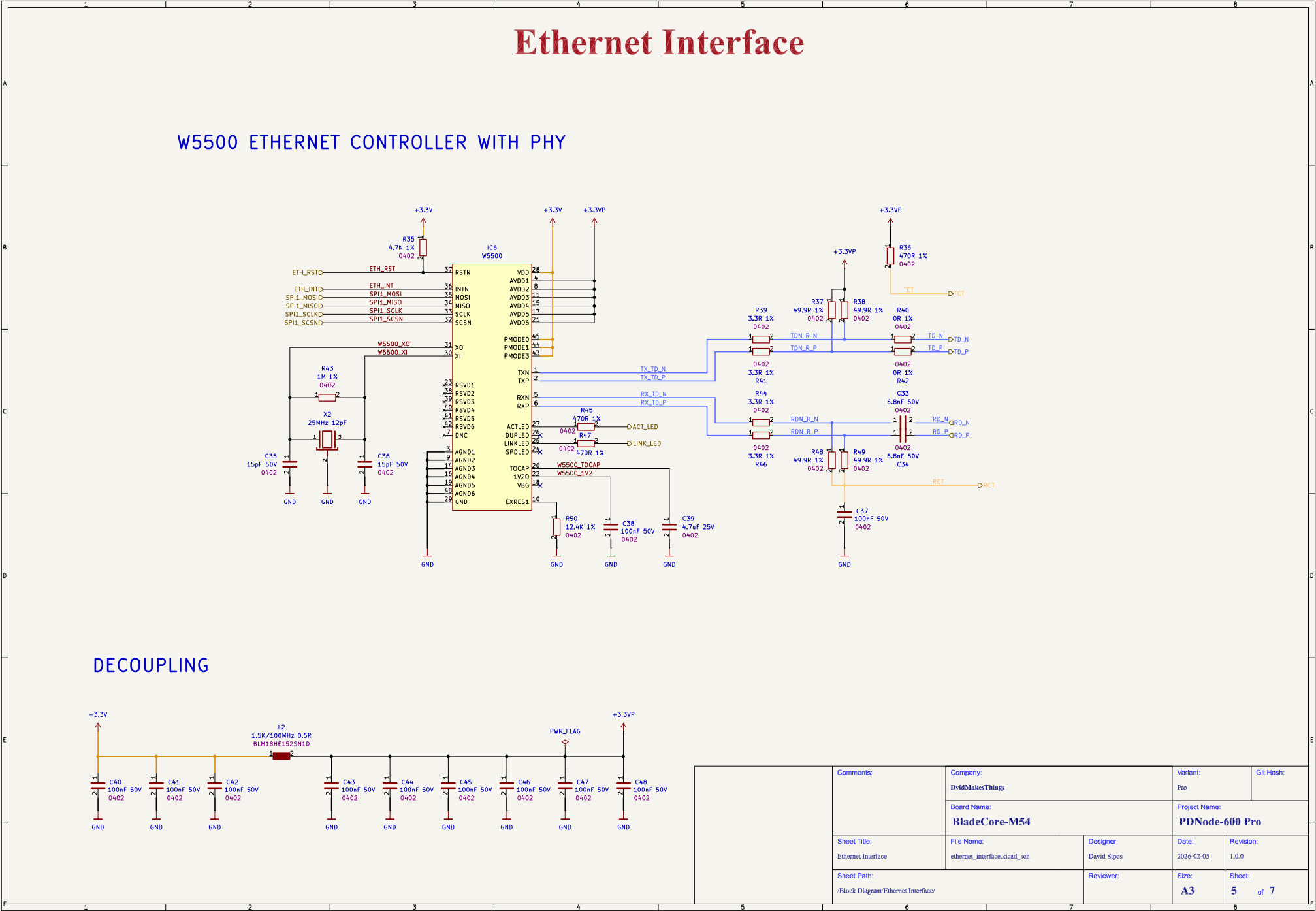
| Comments: | Company: | Variant: | Git Hash: |
|------------------------------------|------------------------------|-------------|------------|
| | DavidMakesThings | Pro | |
| Board Name: | Project Name: | | |
| BladeCore-M54 | PDNode-600 Pro | | |
| Sheet Title: | File Name: | Designer: | Date: |
| Ethernet Interface | ethernet_interface.kicad_sch | David Sipos | 2026-02-05 |
| Sheet Path: | Reviewer: | Size: | Revision: |
| /Block Diagram/Ethernet Interface/ | | A3 | 5 of 7 |

Ethernet Interface

W5500 ETHERNET CONTROLLER WITH PHY

DECOUPLING

| Comments: | Company: | Variant: | Git Hash: |
|------------------------------------|------------------------------|-------------|------------|
| | DavidMakesThings | Pro | |
| Board Name: | Project Name: | | |
| BladeCore-M54 | PDNode-600 Pro | | |
| Sheet Title: | File Name: | Designer: | Date: |
| Ethernet Interface | ethernet_interface.kicad_sch | David Sipos | 2026-02-05 |
| Sheet Path: | Reviewer: | Size: | Revision: |
| /Block Diagram/Ethernet Interface/ | | A3 | 5 of 7 |



Ethernet Interface

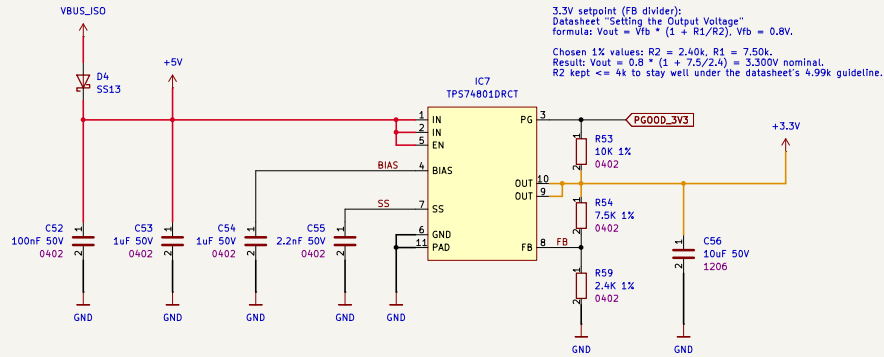
W5500 ETHERNET CONTROLLER WITH PHY

DECOUPLING

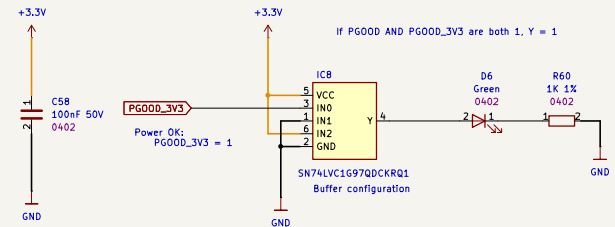
| Comments: | Company: | Variant: | Git Hash: | |
|------------------------------------|------------------------------|-------------|------------|-----------|
| | DavidMakesThings | Pro | | |
| Board Name: | Project Name: | | | |
| BladeCore-M54 | PDNode-600 Pro | | | |
| Sheet Title: | File Name: | Designer: | Date: | Revision: |
| Ethernet Interface | ethernet_interface.kicad_sch | David Sipos | 2026-02-05 | 1.0.0 |
| Sheet Path: | Reviewer: | | Size: | Sheet: |
| /Block Diagram/Ethernet Interface/ | | | A3 | 5 of 7 |

USB Interface and Power

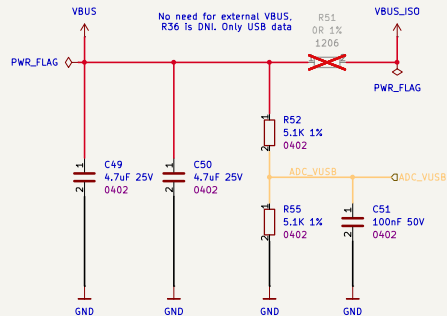
+5V to 3.3V PMIC



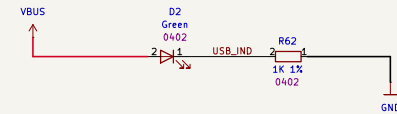
PGOOD LOGIC



VBUS DECOUPLING



USB INDICATOR LED



| | | | | |
|--|--|---------------------------------------|---------------------------------|---------------------|
| | Comments: | Company: DavidMakesThings | Variant: Pro | Git Hash: |
| | | Board Name: BladeCore-M54 | Project Name: PDNode-600 Pro | |
| | Sheet Title: USB Interface and Power | File Name: usb_interface.kicad_sch | Designer: David Sipos | Date: 2026-02-05 |
| | Sheet Path: /Block Diagram/USB Interface and Power/ | Reviewer: | Size: A3 | Revision: 1.0.0 |
| | | | Sheet: 6 of 7 | |

Revision History

| DATE | REVISION | RESPONSIBLE | CHANGE |
|------------|----------|-------------|------------------|
| 07.02.2026 | 1.0.0 | DMT | INITIAL CREATION |
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| | Comments: | Company: DvidMakesThings | | Variant: Pro | Git Hash: |
| | | Board Name: BladeCore-M54 | | Project Name: PDNode-600 Pro | |
| | Sheet Title: Revision History | File Name: Revision History.kicad_sch | Designer: David Sipos | Date: 2026-02-05 | Revision: 1.0.0 |
| | Sheet Path: /Revision History/ | | Reviewer: | Size: A3 | Sheet: 7 of 7 |