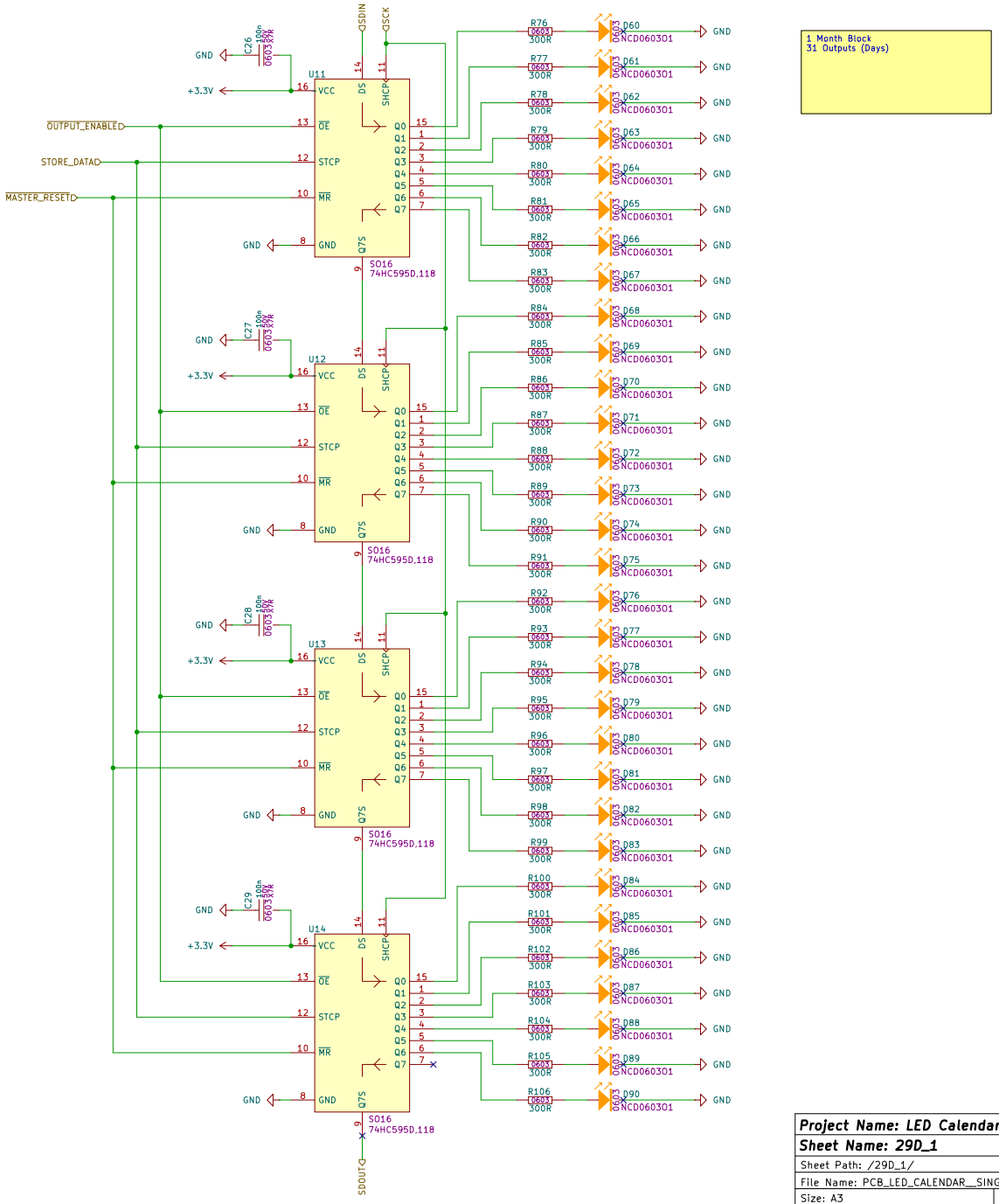
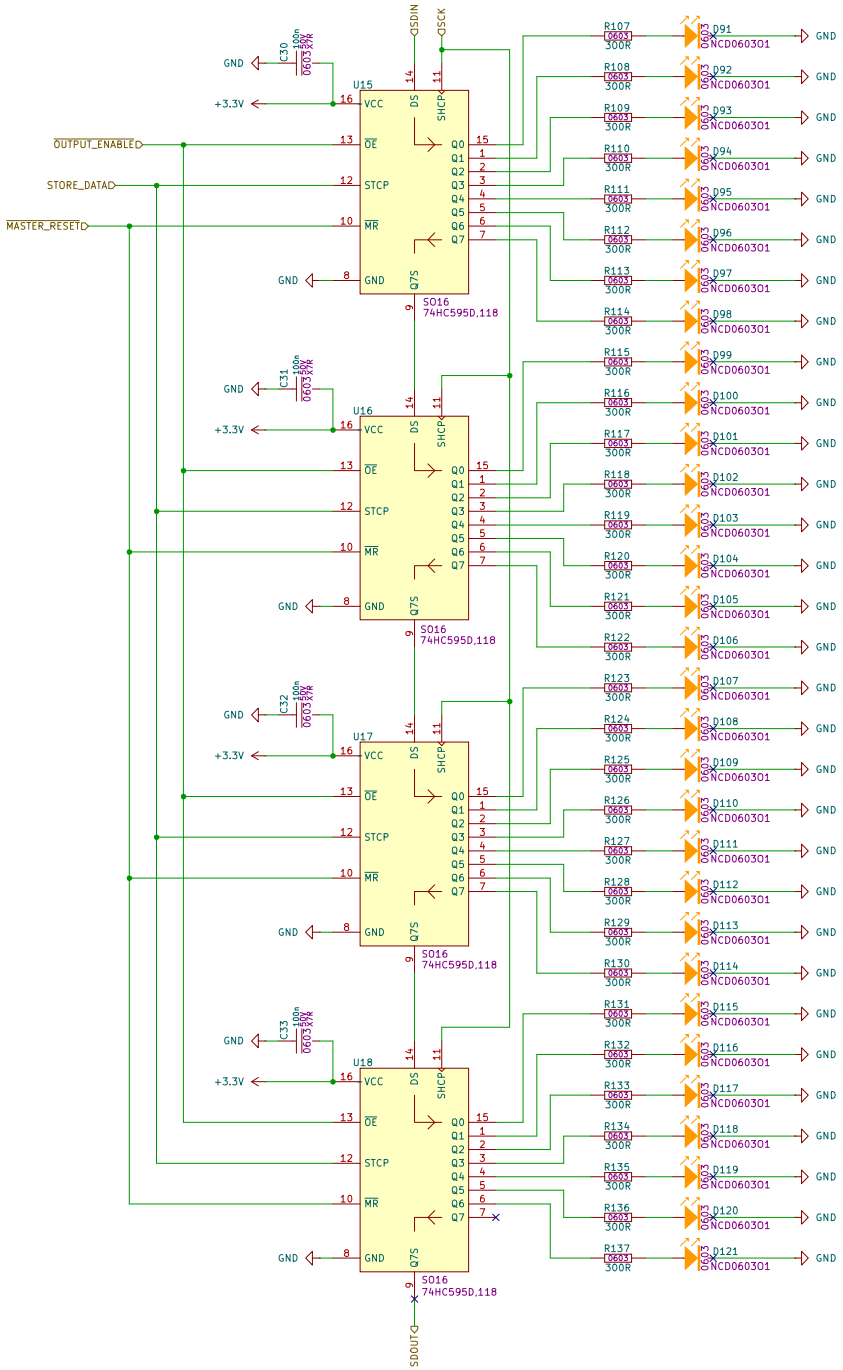


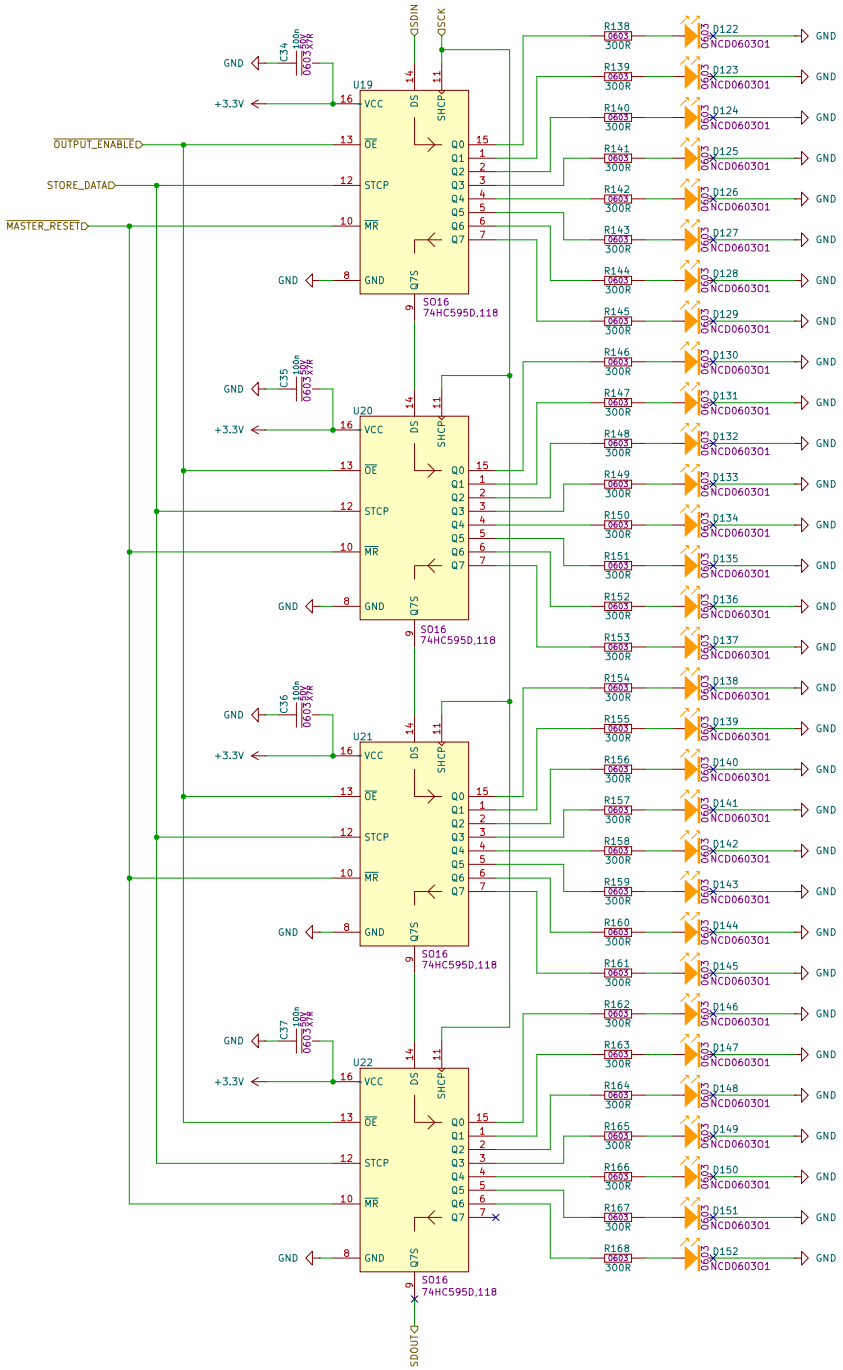
1 Month Block
31 Outputs (Days)

Project Name: LED Calendar (ESP8266 based)		**BYTECHLAB RESEARCH**
Sheet Name: 29D_1		
Sheet Path: /29D_1/		CC BY-SA 4.0
File Name: PCB_LED_CALENDAR__SINGLE_MONTH_31D.kicad_sch		
Size: A3	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 1/20



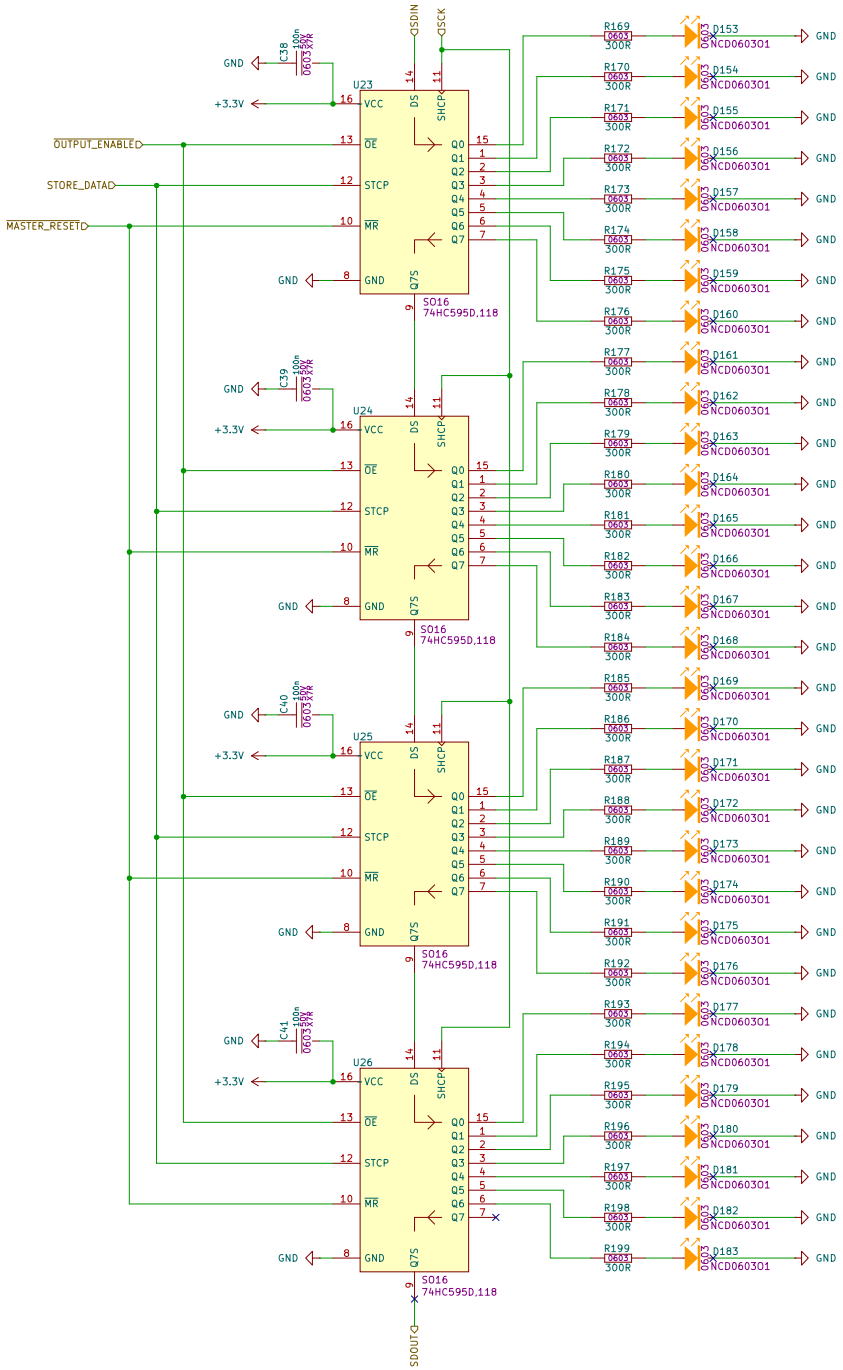
1 Month Block
31 Outputs (Days)

Project Name: LED Calendar (ESP8266 based)		BYTECHLAB RESEARCH
Sheet Name: 30D_1		
Sheet Path: /30D_1/		CC BY-SA 4.0
File Name: PCB_LED_CALENDAR__SINGLE_MONTH_31D.kicad_sch		
Size: A3	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 2/20



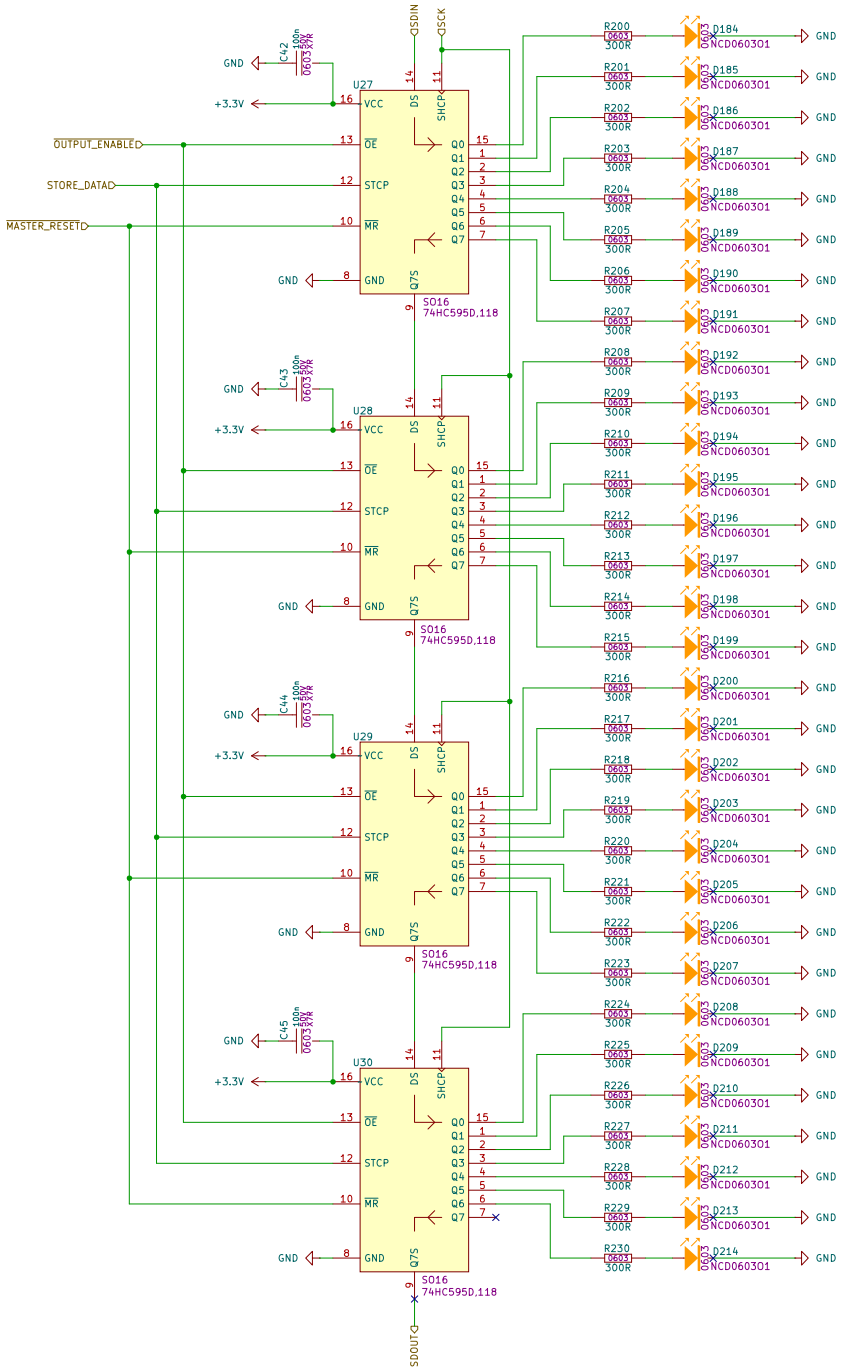
1 Month Block
31 Outputs (Days)

Project Name: LED Calendar (ESP8266 based)		BYTECHLAB RESEARCH
Sheet Name: 30D_2		
Sheet Path: /30D_2/		
File Name: PCB_LED_CALENDAR__SINGLE_MONTH_31D.kicad_sch		CC BY-SA 4.0
Size: A3	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 3/20



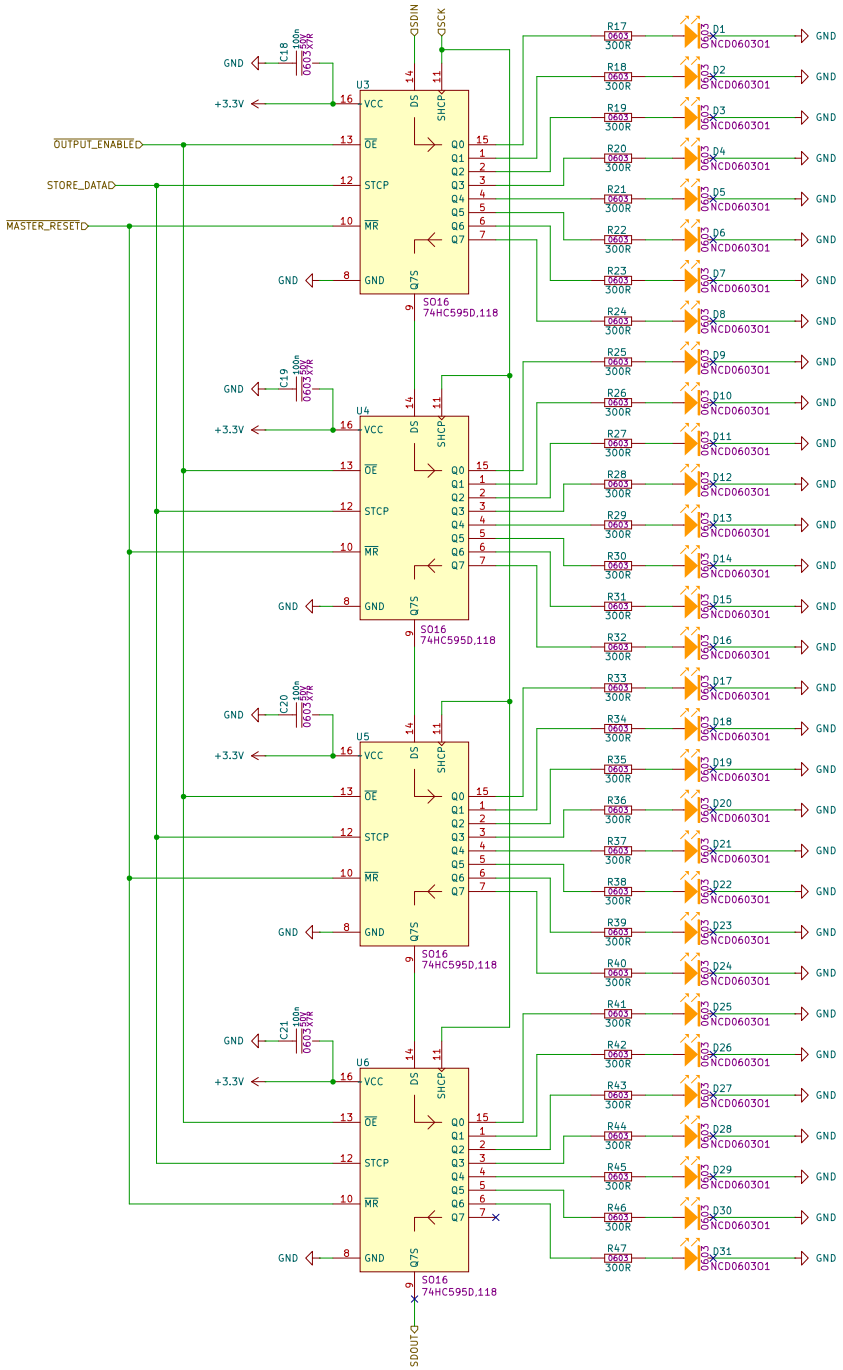
1 Month Block
31 Outputs (Days)

Project Name: LED Calendar (ESP8266 based)		BYTECHLAB RESEARCH
Sheet Name: 30D_3		
Sheet Path: /30D_3/		CC BY-SA 4.0
File Name: PCB_LED_CALENDAR__SINGLE_MONTH_31D.kicad_sch		
Size: A3	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 4/20



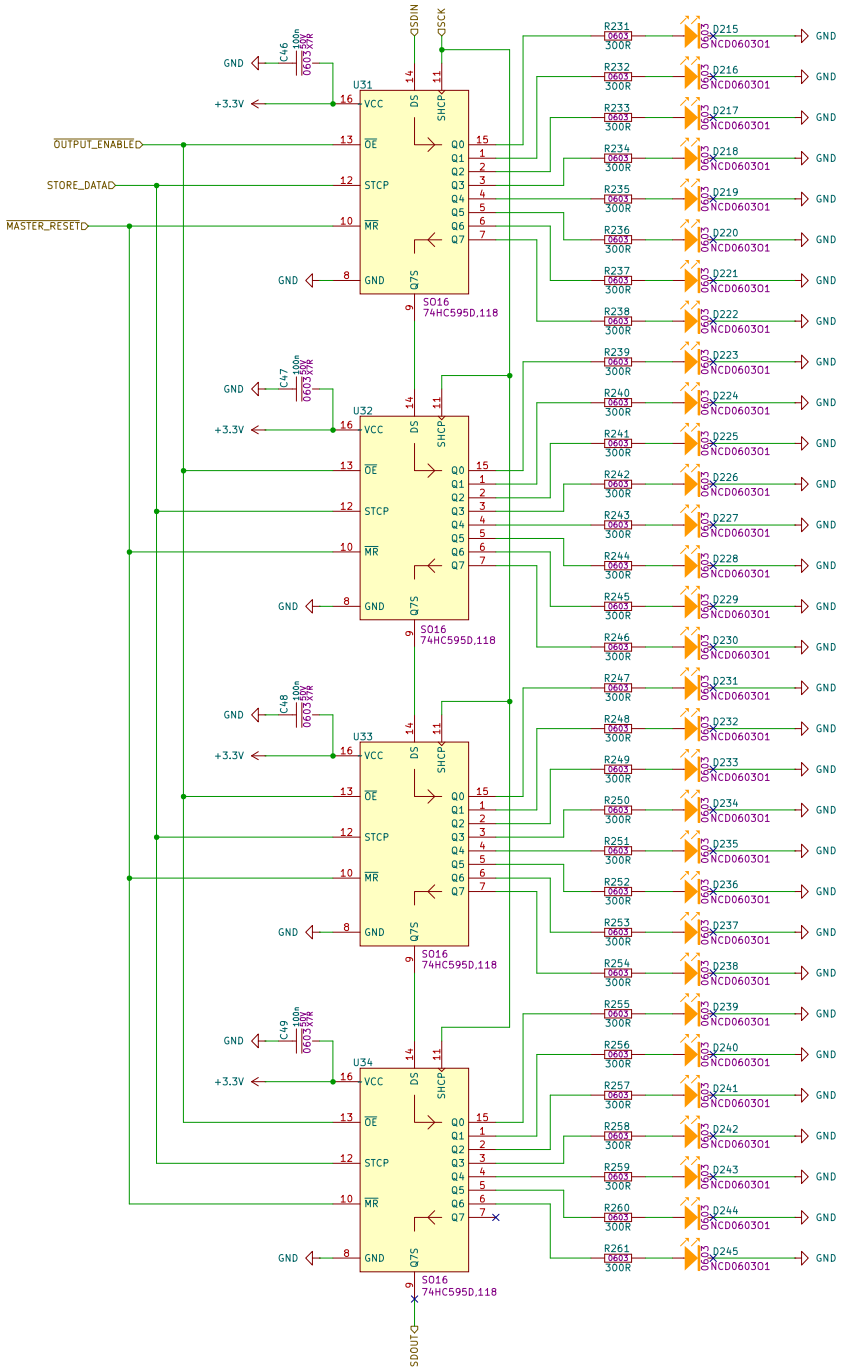
1 Month Block
31 Outputs (Days)

Project Name: LED Calendar (ESP8266 based)		BYTECHLAB RESEARCH
Sheet Name: 30D_4		
Sheet Path: /30D_4/		CC BY-SA 4.0
File Name: PCB_LED_CALENDAR__SINGLE_MONTH_31D.kicad_sch		
Size: A3	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 5/20



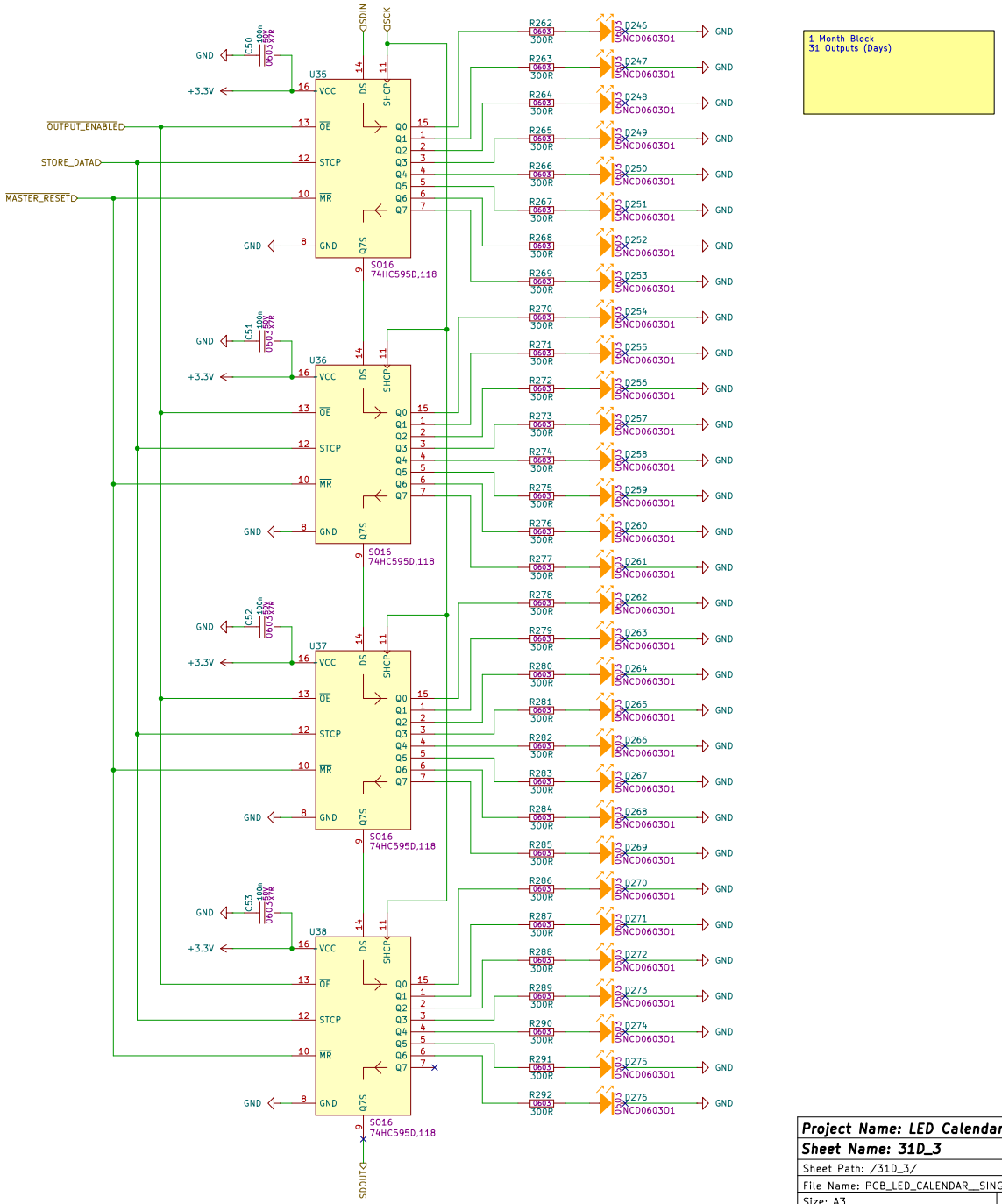
1 Month Block
31 Outputs (Days)

Project Name: LED Calendar (ESP8266 based)		BYTECHLAB RESEARCH
Sheet Name: 31D_1		
Sheet Path: /31D_1/		CC BY-SA 4.0
File Name: PCB_LED_CALENDAR__SINGLE_MONTH_31D.kicad_sch		
Size: A3	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 6/20



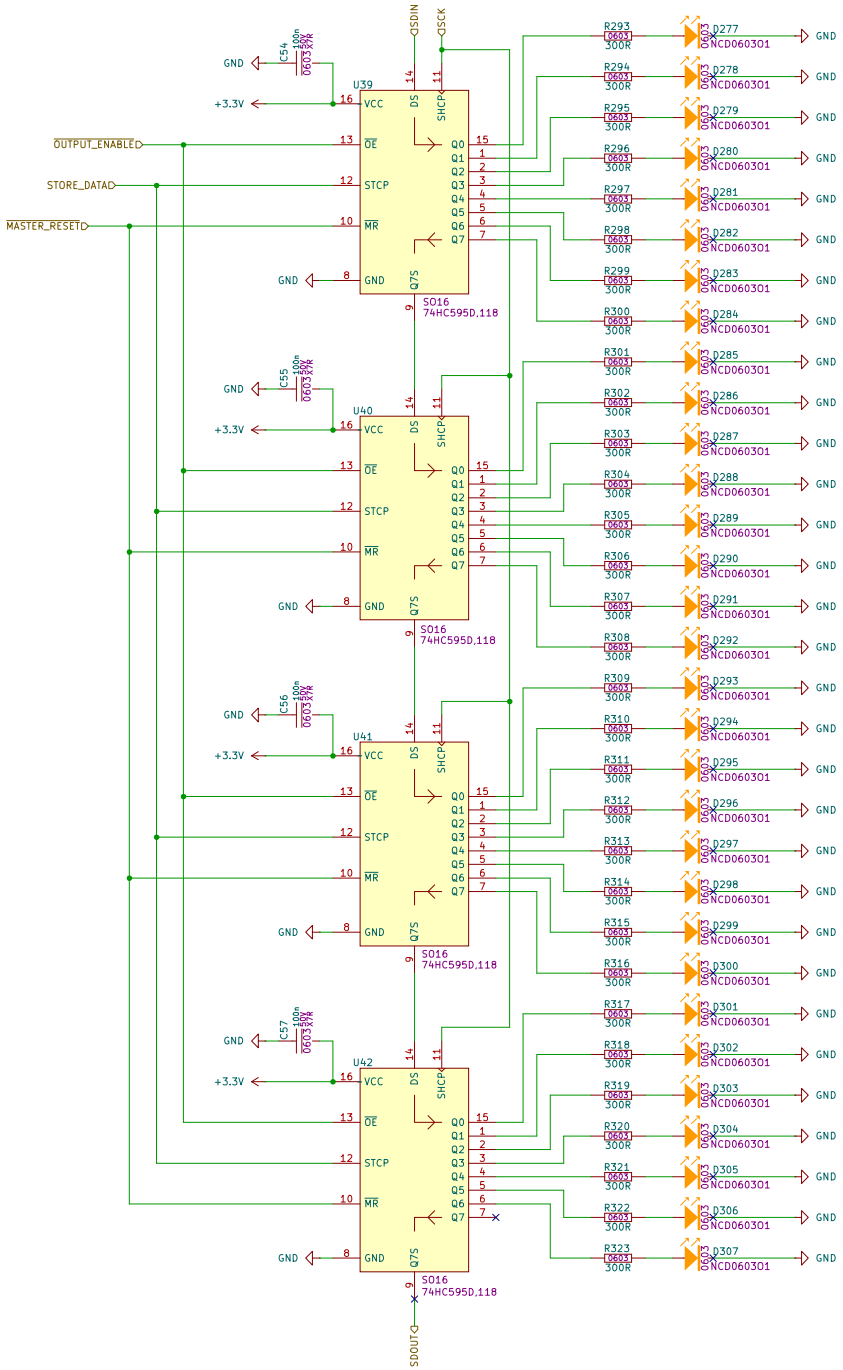
1 Month Block
31 Outputs (Days)

Project Name: LED Calendar (ESP8266 based)		BYTECHLAB RESEARCH
Sheet Name: 31D_2		
Sheet Path: /31D_2/		CC BY-SA 4.0
File Name: PCB_LED_CALENDAR__SINGLE_MONTH_31D.kicad_sch		
Size: A3	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 7/20



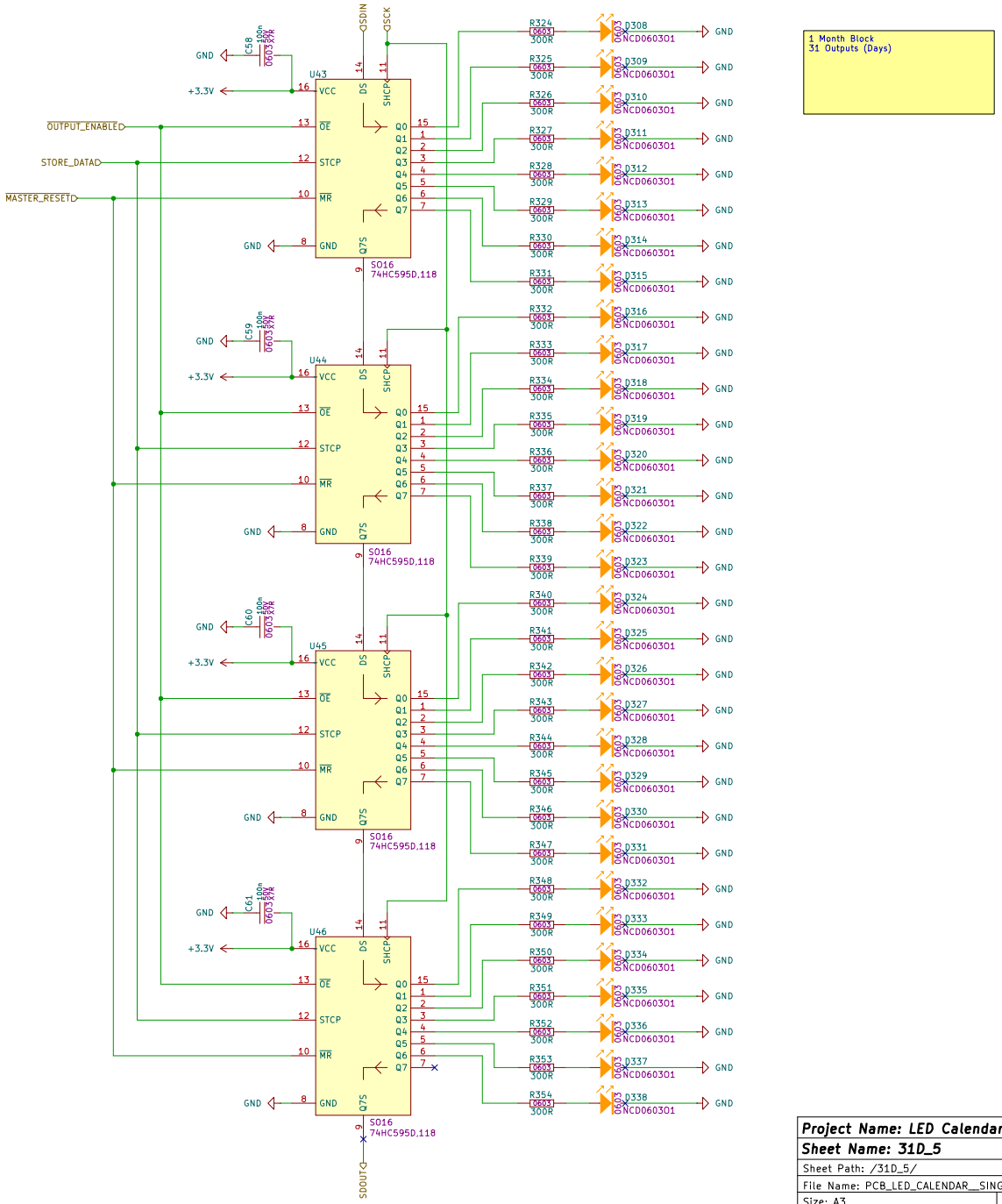
1 Month Block
31 Outputs (Days)

Project Name: LED Calendar (ESP8266 based)		BYTECHLAB RESEARCH
Sheet Name: 31D_3		
Sheet Path: /31D_3/		
File Name: PCB_LED_CALENDAR__SINGLE_MONTH_31D.kicad_sch		CC BY-SA 4.0
Size: A3	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 8/20



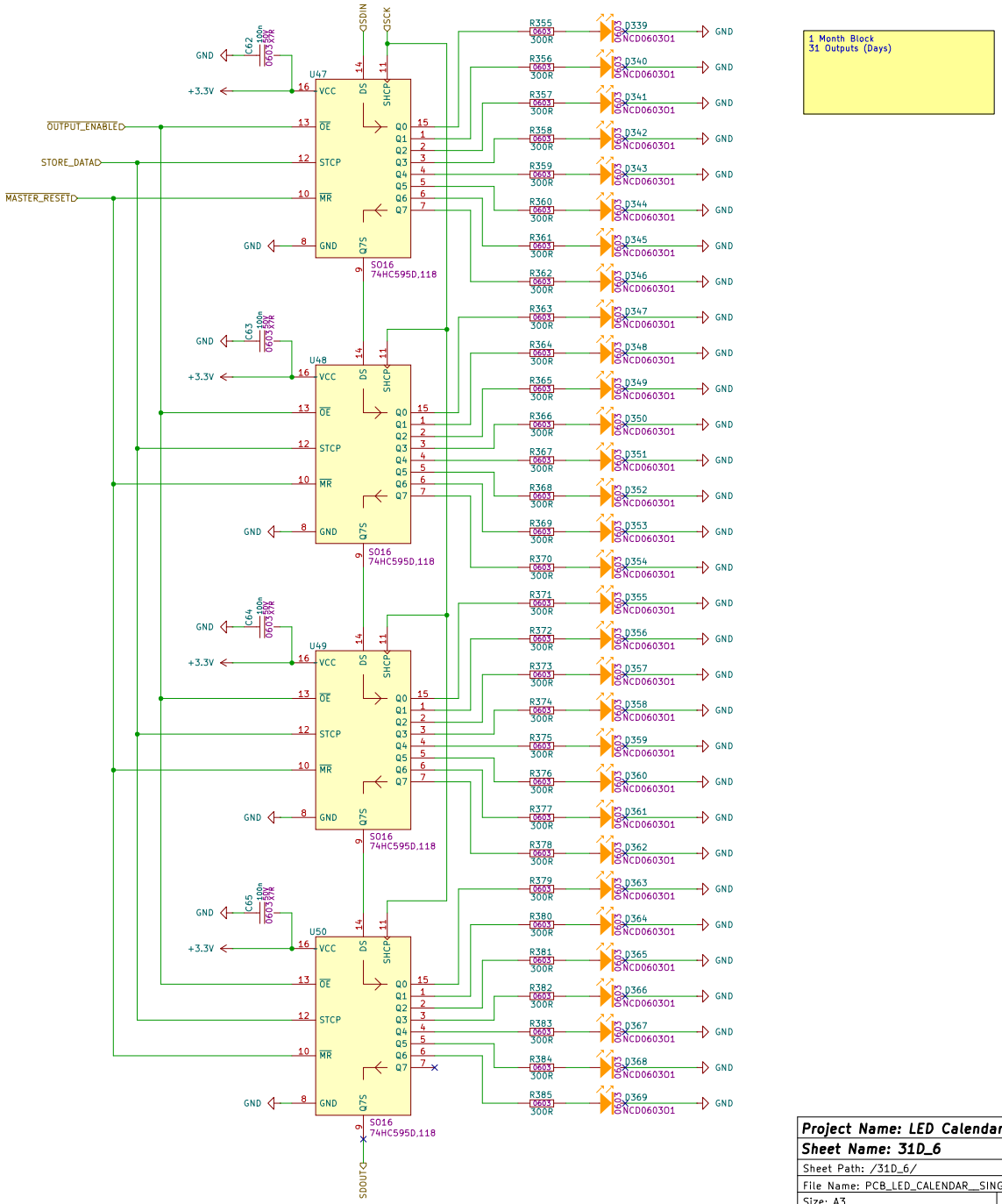
1 Month Block
31 Outputs (Days)

Project Name: LED Calendar (ESP8266 based)		BYTECHLAB RESEARCH
Sheet Name: 31D_4		
Sheet Path: /31D_4/		CC BY-SA 4.0
File Name: PCB_LED_CALENDAR__SINGLE_MONTH_31D.kicad_sch		
Size: A3	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 9/20



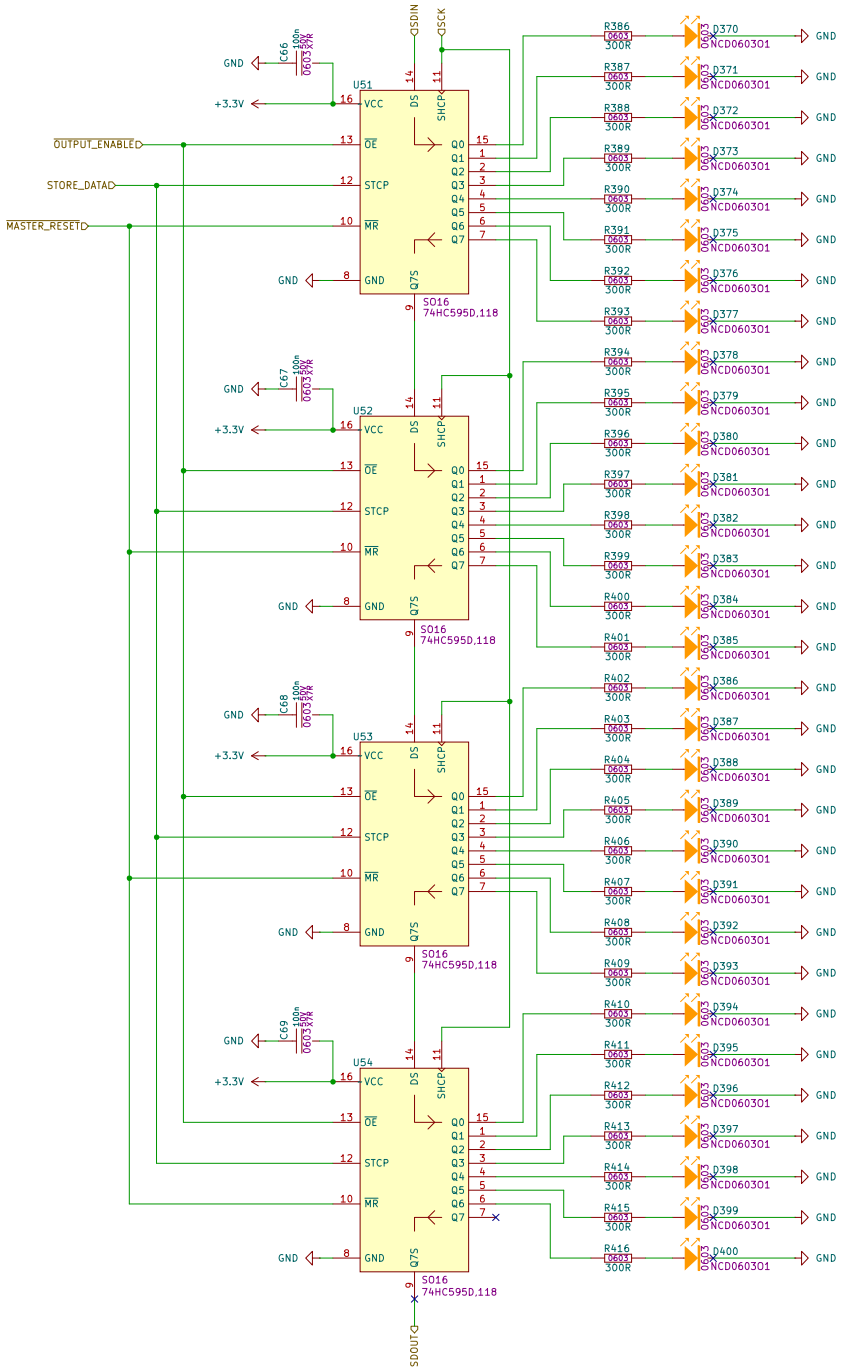
1 Month Block
31 Outputs (Days)

Project Name: LED Calendar (ESP8266 based)		BYTECHLAB RESEARCH
Sheet Name: 31D_5		
Sheet Path: /31D_5/		CC BY-SA 4.0
File Name: PCB_LED_CALENDAR__SINGLE_MONTH_31D.kicad_sch		
Size: A3	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 10/20



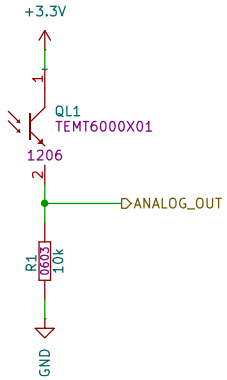
1 Month Block
31 Outputs (Days)

Project Name: LED Calendar (ESP8266 based)		BYTECHLAB RESEARCH
Sheet Name: 31D_6		
Sheet Path: /31D_6/		CC BY-SA 4.0
File Name: PCB_LED_CALENDAR__SINGLE_MONTH_31D.kicad_sch		
Size: A3	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 11/20



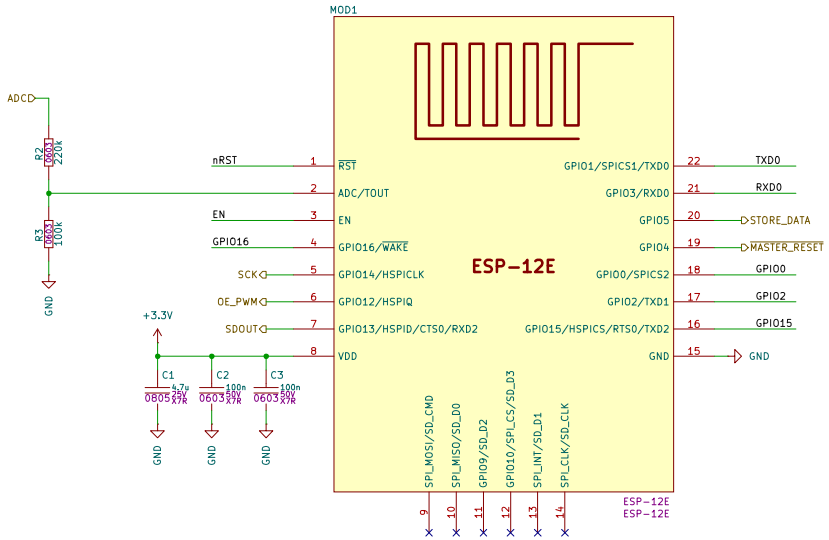
1 Month Block
31 Outputs (Days)

Project Name: LED Calendar (ESP8266 based)		BYTECHLAB RESEARCH
Sheet Name: 31D_7		
Sheet Path: /31D_7/		CC BY-SA 4.0
File Name: PCB_LED_CALENDAR__SINGLE_MONTH_31D.kicad_sch		
Size: A3	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 12/20



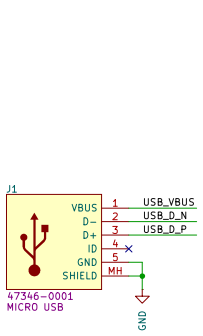
Project Name: LED Calendar (ESP8266 based)		**BYTECHLAB RESEARCH**
Sheet Name: AMBIENT_LIGHT_SENS		
Sheet Path: /AMBIENT_LIGHT_SENS/		
File Name: PCB_LED_CALENDAR__AMBIENT_LIGHT_SENS.kicad_sch		CC BY-SA 4.0
Size: A4	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 13/20

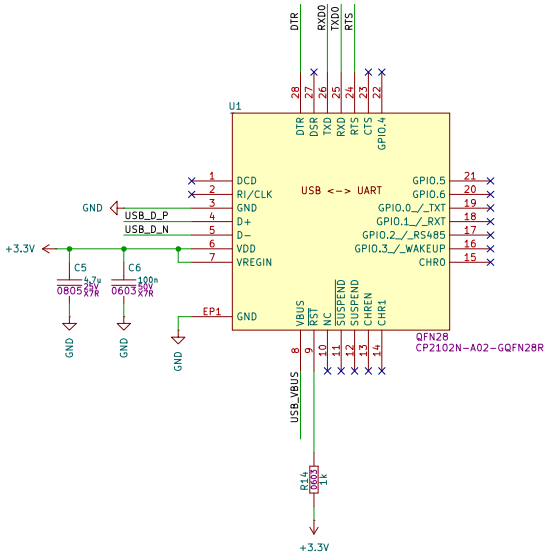
ESP−12E MODULE

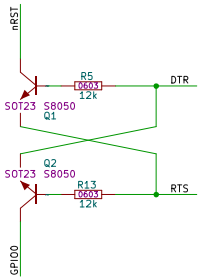


ESP PROGRAMMING

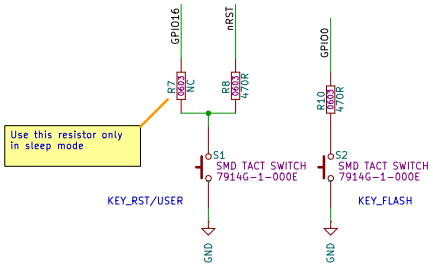
On every boot/reset/wakeup,
GPIO15 MUST keep LOW, GPIO2 MUST keep HIGH.
GPIO0 HIGH −>RUN MODE, LOW −> FLASH MODE.
When you need to use the sleep mode,GPIO16 and RST should be connected,
and GPIO16 will output LOW to reset the system at the time of wakeup.

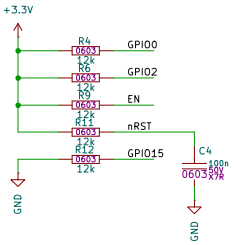




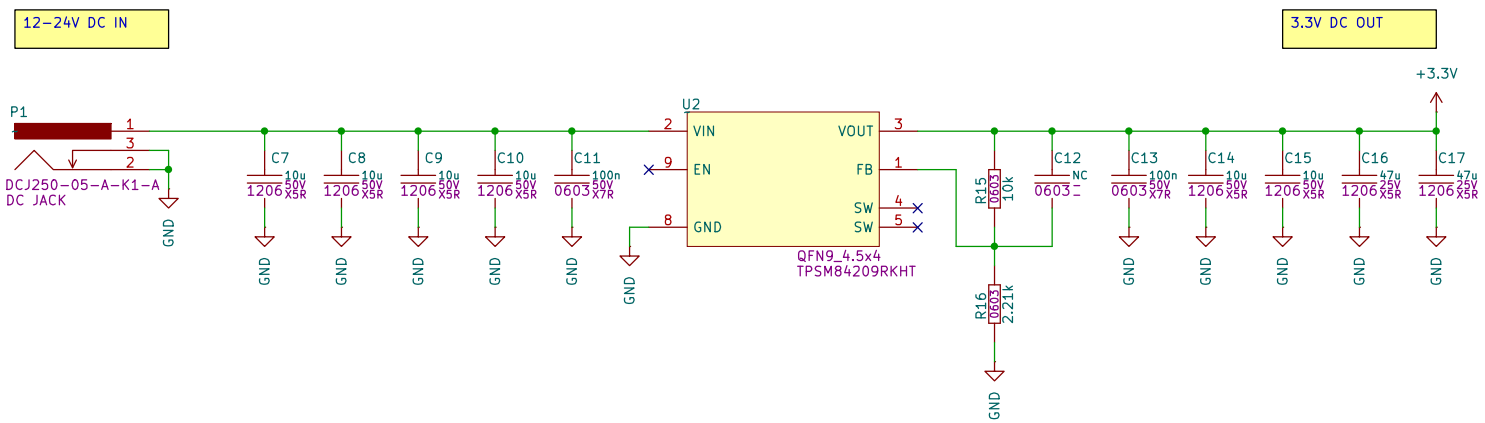


AUTO PROGRAMMING CIRCUIT			
DTR	RTS	RST	GPIO0
1	1	1	1
0	0	1	1
1	0	0	1
0	1	1	0

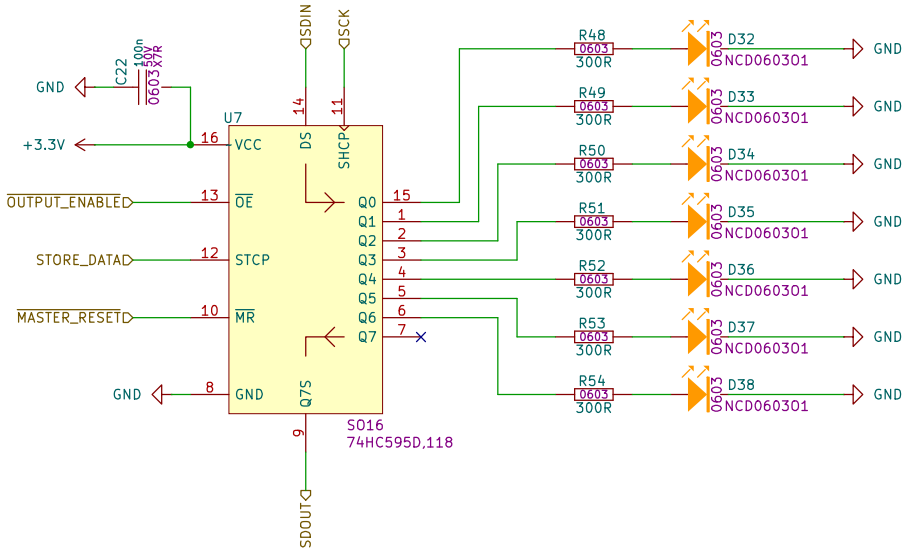




Project Name: LED Calendar (ESP8266 based)			BYTECHLAB RESEARCH
Sheet Name: ESP−12E			
Sheet Path: /ESP−12E/			CC BY−SA 4.0
File Name: PCB_LED_CALENDAR__ESP−12E.kicad_sch			
Size: A3	Date: 2025−08−08	**Rev: 1**	
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 14/20	

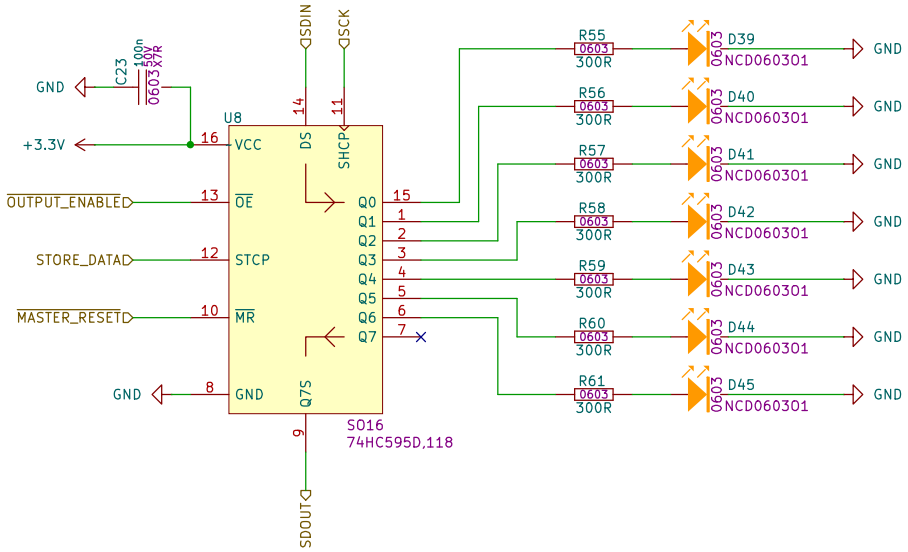


Project Name: LED Calendar (ESP8266 based)		**BYTECHLAB RESEARCH**
Sheet Name: POWER		
Sheet Path: /POWER/		CC BY-SA 4.0
File Name: PCB_LED_CALENDAR__POWER.kicad_sch		
Size: A4	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 15/20



1 Year Digit Block
7 Outputs

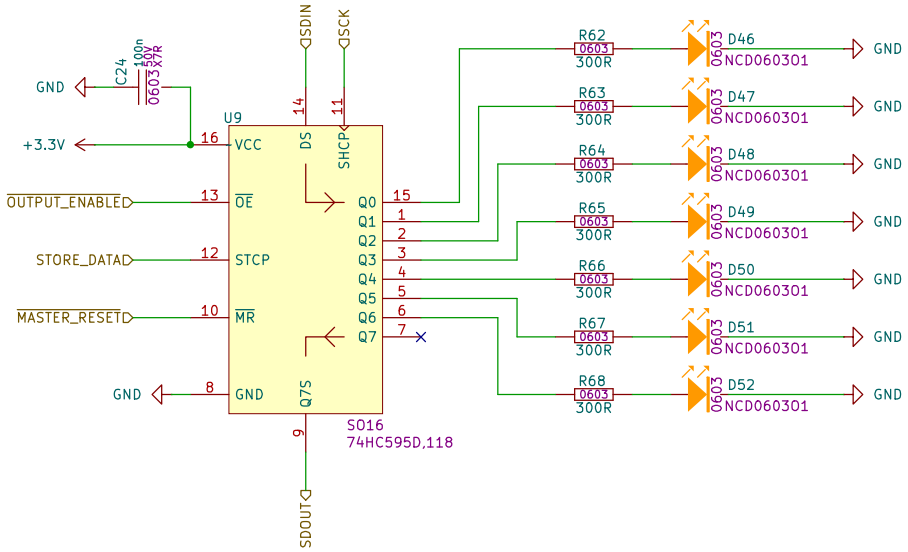
Project Name: LED Calendar (ESP8266 based)		**BYTECHLAB RESEARCH**
Sheet Name: YD_1		
Sheet Path: /YD_1/		
File Name: PCB_LED_CALENDAR__SINGLE_YEAR_DIGIT.kicad_sch		CC BY-SA 4.0
Size: A4	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 16/20



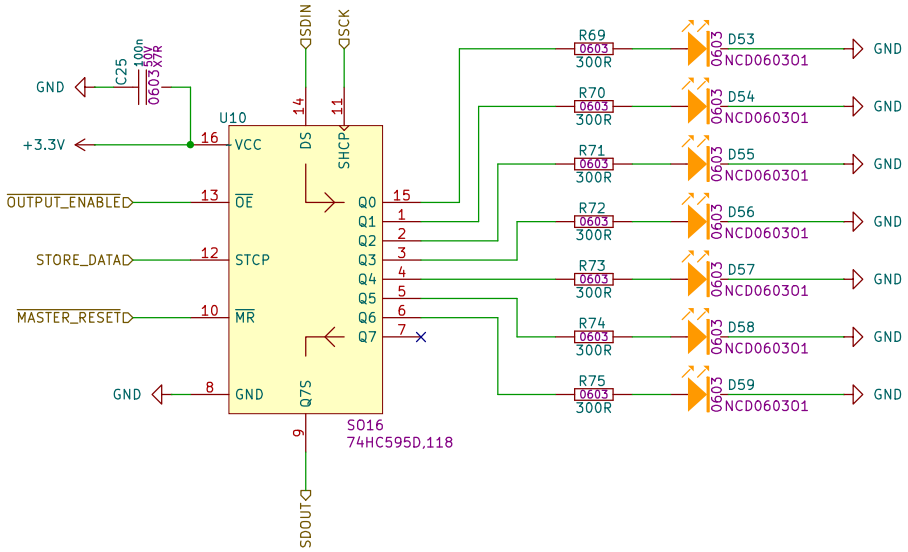
1 Year Digit Block
7 Outputs

Project Name: LED Calendar (ESP8266 based)		
Sheet Name: YD_2		
Sheet Path: /YD_2/		
File Name: PCB_LED_CALENDAR__SINGLE_YEAR_DIGIT.kicad_sch		
Size: A4	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 17/20

BYTECHLAB RESEARCH



Project Name: LED Calendar (ESP8266 based)		BYTECHLAB RESEARCH
Sheet Name: YD_3		
Sheet Path: /YD_3/		
File Name: PCB_LED_CALENDAR__SINGLE_YEAR_DIGIT.kicad_sch		CC BY-SA 4.0
Size: A4	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 18/20



1 Year Digit Block
7 Outputs

Project Name: LED Calendar (ESP8266 based)		BYTECHLAB RESEARCH
Sheet Name: YD_4		
Sheet Path: /YD_4/		
File Name: PCB_LED_CALENDAR__SINGLE_YEAR_DIGIT.kicad_sch		CC BY-SA 4.0
Size: A4	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: 19/20

File: PCB_LED_CALENDAR_AMBIENT_LIGHT_SENS.kicad_sch

ANALOG_OUT

File: PCB_LED_CALENDAR_ESP-12E.kicad_sch

ADC

SDOUT
SCK
STORE_DATA
MASTER_RESET
OE_PWM

WIFI

File: PCB_LED_CALENDAR_POWER.kicad_sch

File: PCB_LED_CALENDAR_SINGLE_MONTH_31D.kicad_sch

SDIN
SCK
STORE_DATA
MASTER_RESET
OUTPUT_ENABLE
SDOUT

JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

File: PCB_LED_CALENDAR_SINGLE_YEAR_DIGIT.kicad_sch

SDIN
SCK
STORE_DATA
MASTER_RESET
OUTPUT_ENABLE
SDOUT

Layer Stackup

Layers: 4 Thickness: 1.6 Outer Copper Weight: 1 Inner Copper Weight: 0.5

No requirement	JLC04161H-7628	JLC04161H-3313	JLC04161H-1080
JLC04161H-7628A	JLC04161H-7628B	JLC04161H-3313A	JLC04161H-1080A
JLC04161H-2116A	JLC04161H-2116B	JLC04161H-2116C	

Layer	Material Type	Thickness	
Layer	Copper	0.035mm	
Prepreg	7628*1	0.2104mm	
inner Layer	Copper	0.0152mm	1.1mm (with copper
Core	Core	1.065mm	
inner Layer	Copper	0.0152mm	
Prepreg	7628*1	0.2104mm	
Layer	Copper	0.035mm	

Via Covering: Plugged | Untented | Epoxy Filled & Capped | Copper paste Filled & Capped | Tented

Min via hole size/diameter: 0.3mm/(0.4/0.45mm) | 0.15mm/(0.25/0.3mm) | 0.2mm/(0.3/0.35mm) | 0.25mm/(0.35/0.4mm)

REV1 BUGS / THINGS TO IMPROVE:

- DC/DC Converter makes high pitch noise (coil whine).
* Solder 330 pF to C17.
* Solder 50 Ohm dummy load resistor between +3.3V and GND (1W).
- LED's are too bright (even with lowest PWM).
* Replace LED current limiting resistors from 300 Ohm to 500 Ohm or even 1 k Ohm.
- USB connector footprint is placed too far from the PCB edge.
* Move it closer to the PCB edge.
- DC connector requires a plug converter.
* Replace DC connector from 5,5/2,5 to 5,5/2,1 mm (more comon plug standard)

Project Name: LED Calendar (ESP8266 based)		BYTECHLAB RESEARCH
Sheet Name: Root		
Sheet Path: /		
File Name: PCB_LED_CALENDAR.kicad_sch		
Size: A3	Date: 2025-08-08	**Rev: 1**
Designed By: Andrzej Laczewski	Website: www.bytechlab.com	Id: #/20