LPC2129 EB

Features

- **Philips LPC2129 16/32-bit controller on a handy DIP50 package**
- **Single 5V or 3.3V Power Supply**
- **ARM7TDMI-S Core with up to 60 MHz clock frequency**
- **256 KB Flash,**
- **16 KB RAM**
- **16 KB I2C EEPROM**
- **Up to 46 universal I/O-Pins**
- **2x SPI, I2C, 2x UART**
- **2x CAN**
- **4-channel 10 Bit A/D – converter**
- **2x 32 Timer with:**
  4x Input Capture / Output Compare
- **6x PWM**
- **Watchdog Timer**
- **Real Time Clock**
- **-40 to +85°C Temperature range**
- **Free GNU-Compiler with Eclipse IDE**
- **100% tested**

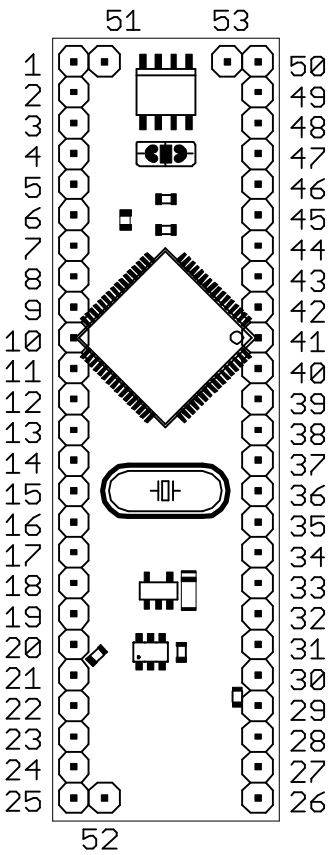

Fig 1. Pinning

1. General description

The LPC2129 Evaluation Board is a functionally complete and low cost controller module, housed on a DIL50 socket for quick prototype work and production.

It accommodates the high performance Phillips LPC2129 MCU with 256 KB Flash and 16 KB RAM. This new 16/32 – bit MCU is based on the ARM7TDMI – S Core with real time emulation and embedded trace support. A 128-bit wide memory interface and a unique accelerator architecture enable 32-bit code execution at maximum clock rate.

Due to its low power consumption, various 32-bit timers, 4-channel 10-bit ADC, 2 advanced CAN channels, 6 PWM channels and 46 GPIO lines with up to 9 external interrupt pins this MCU is particularly suitable for automotive and industrial control applications.

Furthermore the LPC2129 EB is equipped with 16 KB of EEPROM which allow the permanent storage of additional data.

The clock for the LPC2129 EB is supplied by a 10 MHz oscillator, whose signal is multiplied in the MCU by means of an PLL circuit.

The LPC2129 EB disposes its own power supply to provide both the supply voltages for the MCU (1.8 V) and the voltage for the peripheral (3.3 V). This way, the LPC2129 EB just needs one convenient operating voltage of 5 V which in addition can be switched to 3.3 V if needed.

For easy and quick development a free GNU compiler with Eclipse IDE is available. Programs can then easily be loaded onto the LPC2129 EB through a serial interface. On Chip debugging is accomplished by a JTAG interface.

In order to guaranty the dependability of the LPC2129 EB, each module is 100% tested before being shipped.

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2. Pin description

Pin	Pin Name	Function	Alternative	
1	P 0.00	GPIO Port P 0.00	TxD0/PWM1	
2	P 0.01	GPIO Port P 0.01	RxD0/PWM3/EINT0	
3	P 0.02	GPIO Port P 0.02	SCL/CAP0.0	
4	P 0.03	GPIO Port P 0.03	SDA/MAT0.0/EINT1	
5	P 0.04	GPIO Port P 0.04	SCK/CAP0.1	
6	P 0.05	GPIO Port P 0.05	MISO/MAT0.1	
7	P 0.06	GPIO Port P 0.06	MOSI/CAP0.2	
8	P 0.07	GPIO Port P 0.07	SSEL/PWM2/EINT2	
9	P 0.08	GPIO Port P 0.08	TxD1/PWM4	
10	P 0.09	GPIO Port P 0.09	RxD1/PWM6/EINT3	
11	P 0.10	GPIO Port P 0.10	RTS1/CAP1.0	
12	P 0.11	GPIO Port P 0.11	CTS1/CAP1.1	
13	P 0.12	GPIO Port P 0.12	DSR1/MAT1.0	
14	P 0.13	GPIO Port P 0.13	DTR1/MAT1.1	
15	P 0.14	GPIO Port P 0.14	DCD1/EINT1	
16	P 0.15	GPIO Port P 0.15	RI1/EINT2	
17	P 1.16	GPIO Port P 0.16	TRACEPKT0	
18	P 1.17	GPIO Port P 0.17	TRACEPKT1	
19	P 1.18	GPIO Port P 0.18	TRACEPKT2	
20	P 1.19	GPIO Port P 0.19	TRACEPKT3	
21	P 1.20	GPIO Port P 0.20	TRACESYNC	
22	P 1.21	GPIO Port P 0.21	PIPESTAT0	
23	P 1.22	GPIO Port P 0.22	PIPESTAT1	
24	P 1.23	GPIO Port P 0.23	PIPESTAT2	
25	GND	Ground		
26	/MR	Master Reset Input		
27	P 1.24	GPIO Port P 1.24	TRACECLK	
28	P 1.25	GPIO Port P 1.25	EXTIN0	
29	P 1.26	GPIO Port P 1.26	RTCK	
30	P 1.27	GPIO Port P 1.27	TDO	
31	P 1.28	GPIO Port P 1.28	TDI	
32	P 1.29	GPIO Port P 1.29	TCK	
33	P 1.30	GPIO Port P 1.30	TMS	
34	P 1.31	GPIO Port P 1.31	TRSTn	
35	P 0.16	GPIO Port P 0.16	EINT0/MAT0.2/CAP02	
36	P 0.17	GPIO Port P 0.17	CAP1.2/SCK1/MAT1.2	
37	P 0.18	GPIO Port P 0.18	CAP1.3/MISO1/MAT13	
38	P 0.19	GPIO Port P 0.19	MAT1.2/MOSI1/CAP12	
39	P 0.20	GPIO Port P 0.20	MAT1.3/SSEL1/EINT3	
40	P 0.21	GPIO Port P 0.21	PWM5/CAP1.3	
41	P 0.22	GPIO Port P 0.22	CAP0.0/MAT0.0	
42	P 0.23	GPIO Port P 0.23	RD2	

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43	P 0.24	GPIO Port P 0.24	TD2	
44	P 0.25	GPIO Port P 0.25	RD1	
45	TD1	TD1		
46	P 0.27	GPIO Port P 0.27	AIN0/CAP0.1/MAT0.1	
47	P 0.28	GPIO Port P 0.28	AIN1/CAP0.2/MAT0.2	
48	P 0.29	GPIO Port P 0.29	AIN2/CAP0.3/MAT0.3	
49	P 0.30	GPIO Port P 0.30	AIN3/EINT3/CAP0.0	
50	PWR	5V / 3.3V Power Supply		
51	/PWR_EN	Power Down Input		
52	/RESET	Reset Output		
53	3.3V	3.3V Output		

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3. Power Supply - Selection

5 V Power Supply (default setting)

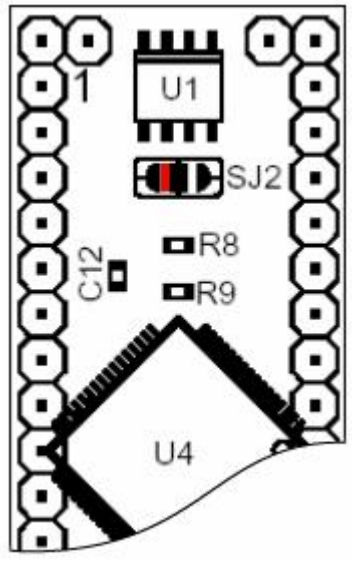

Fig 2. 5V Power Supply

Position 1- 2

Set the soldering jumper SJ2 onto the highlighted position **1 – 2** in order to use an operating voltage of 5 V.

3.3 V Power Supply

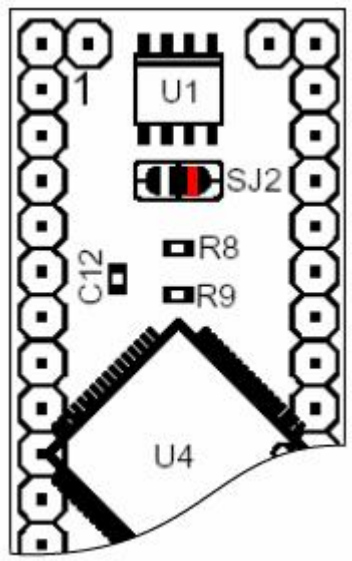

Fig 3. 3.3V Power Supply

Position 2 - 3

Set the soldering jumper SJ2 onto the highlighted position **2 – 3** in order to use an operating voltage of 3.3 V.

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4. Enable – Disable I2C EEPROM

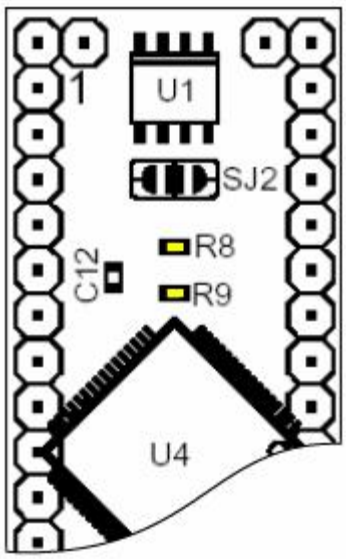

Fig 3. 3.3V EEPROM activation

Enable I2C EEPROM - module loaded with R8 / R9 (default).

Disable I2C EEPROM - remove R8 / R9 from module.

6. Schematic

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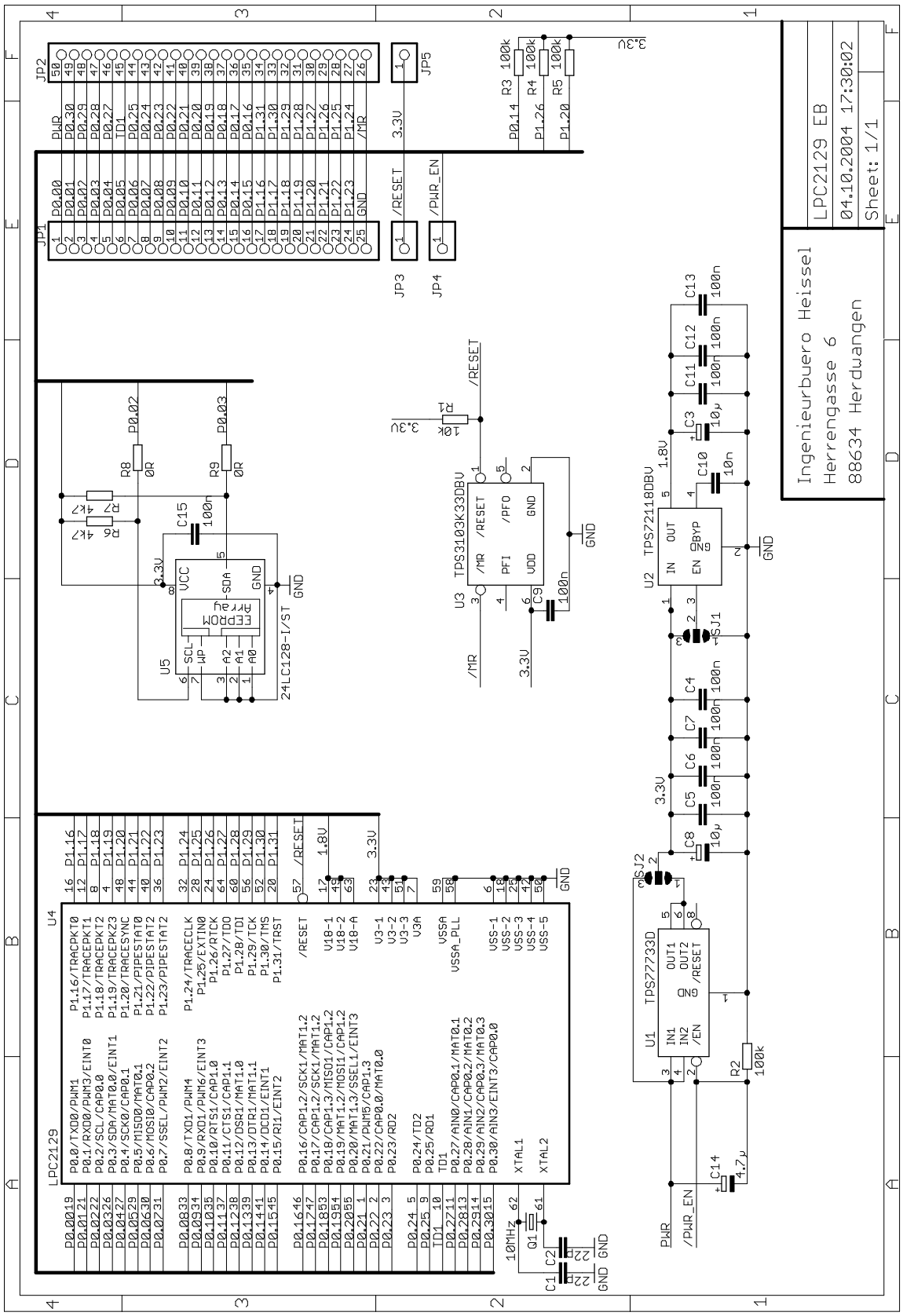

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7. Board Layout

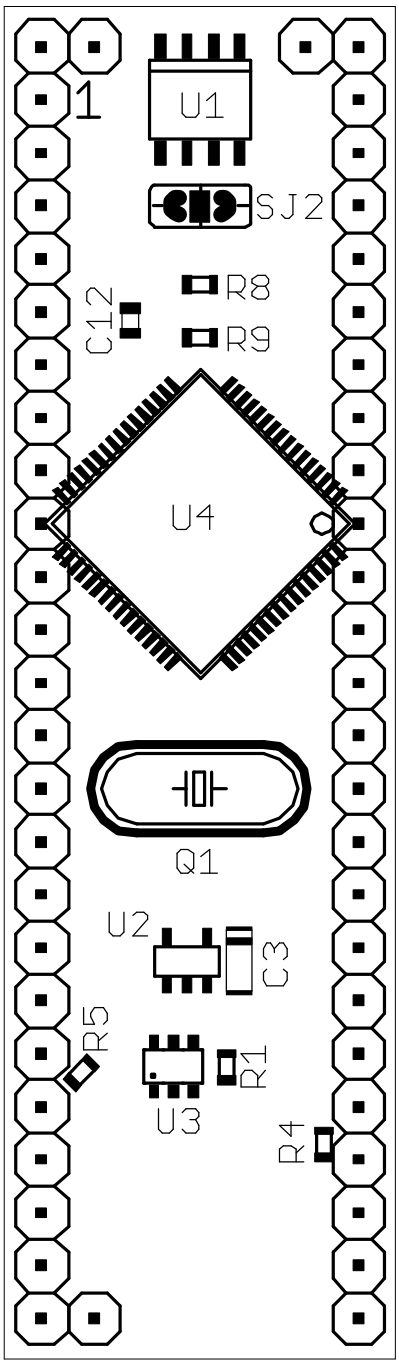

Fig 4. Top Side

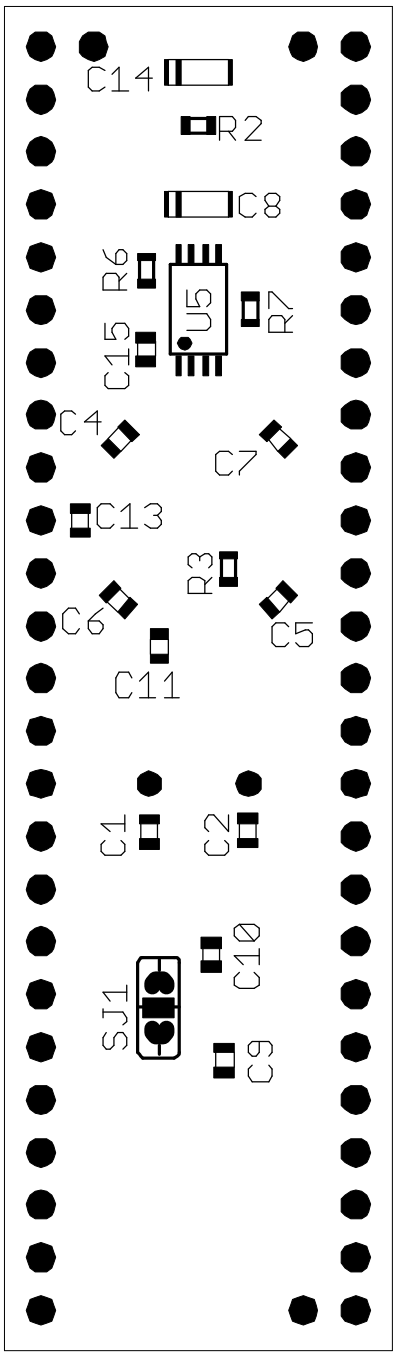

Fig 5. Bottom Side

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8. Bill of material

Part	Value	Package	Description	
C1	22pF / 50V	0603	Kemet	C603C220J5GACTU
C2	22pF / 50V	0603	Kemet	C603C220J5GACTU
C3	10µF /10V	Size A	AVX	TPS106K010R0900
C4	100nF / 16V	0603	Kemet	C0603C104K4RACTU
C5	100nF / 16V	0603	Kemet	C0603C104K4RACTU
C6	100nF / 16V	0603	Kemet	C0603C104K4RACTU
C7	100nF / 16V	0603	Kemet	C0603C104K4RACTU
C8	10µF /10V	Size A	AVX	TPS106K010R0900
C9	100nF / 16V	0603	Kemet	C0603C104K4RACTU
C10	10nF / 50V	0603	Kemet	C0603C103KRACTU
C11	100nF / 16V	0603	Kemet	C0603C104K4RACTU
C12	100nF / 16V	0603	Kemet	C0603C104K4RACTU
C13	100nF / 16V	0603	Kemet	C0603C104K4RACTU
C14	-	-	-	
C15	100nF / 16V	0603	Kemet	C0603C104K4RACTU
Q1	Crystal 10MHz 30ppm	HC49-US	ECS	ECS-100-20
R1	10kΩ 1/10W 1%	0603	Yageo	9C06031A1002FKHFT
R2	100kΩ 1/10W 1%	0603	Yageo	9C06031A1003FKHFT
R3	100kΩ 1/10W 1%	0603	Yageo	9C06031A1003FKHFT
R4	100kΩ 1/10W 1%	0603	Yageo	9C06031A1003FKHFT
R5	100kΩ 1/10W 1%	0603	Yageo	9C06031A1003FKHFT
R6	4.7kΩ 1/10W 1%	0603	Yageo	9C06031A4701FKHFT
R7	4.7kΩ 1/10W 1%	0603	Yageo	9C06031A4701FKHFT
R8	0.0Ω 1/10W 1%	0603	Yageo	9C06031A0R00JLFHT
R9	0.0Ω 1/10W 1%	0603	Yageo	9C06031A0R00JLFHT
U1	LDO 3.3V 500mA	SOIC 8	TI	TPS77533D
U2	LDO 1.8V 150mA	SOT-23	TI	TPS72118DBVT
U3	Supervisory IC 2.94V	SOT-23-6	TI	TPS3103K33DBVR
U4	Microcontroller	LQFP64	Philips	LPC2129FBD64
U5	IIC EEPROM 16kB	TSSOP8	Microchip	24LC128-I/ST

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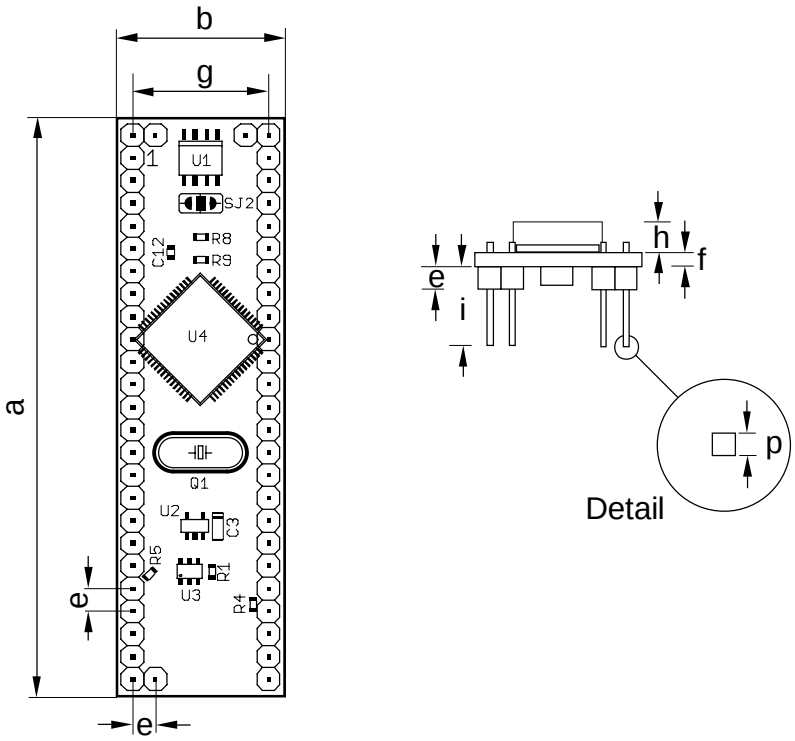
8. Board Dimension



Dimension	mm	mil
a	64.77	2550
b	18.75	738
e	2.54	100
g	15.24	600
f	1.60	63
h	3.65	144
i	8.55	337
p	0.635	25

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