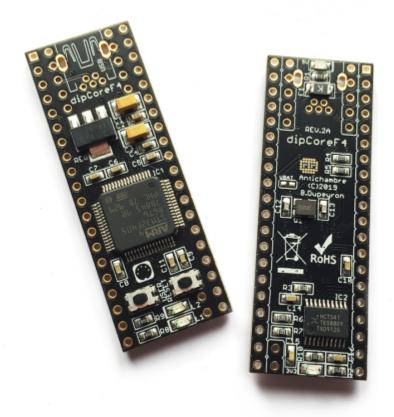
2025/11/07 11:01 1/6 dipCoreF4

dipCoreF4

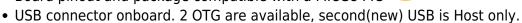


A reduced Core for your MIDIbox App, an STM32F405RG in a DIP40 format.



Features

- MIOS32 uses same processor family and drivers(no deep change).
- Same internal hardware as Disco or wCore (speed, memory, peripherals, etc...) .
- Board pinout and package compatible with a MIOS8 PIC



- 5V power input and led.
- 3.3V regulator and led on board.
- 74HCT541 on board for the 5V output ports.
- User and Reset buttons.
- 2 user leds.
- 12 extra pins for USB, buttons and leds.
- Your favorite Core is now a current component easy to integrate.

All commons MIOS32 ports are available except:

- General purpose J10x ports were removed.
- LCD port was reduced to a serial one, no more pins J15.D0-D7, no back-light power supply.
- 2 UART only(2 MIDI In/2Out).
- 2 AIN channels only(e.g. pedal inputs).
- SPI slave only supported by J19(SPI3).



Check the dipBoardF4 for more details

Download

dipCoreF4 eagle lib for easy integration in your design.

dipcoref4 beta.zip

Pinout

First, was a chart.

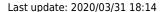
This chart gives you the equivalence between the different pinout and functions.

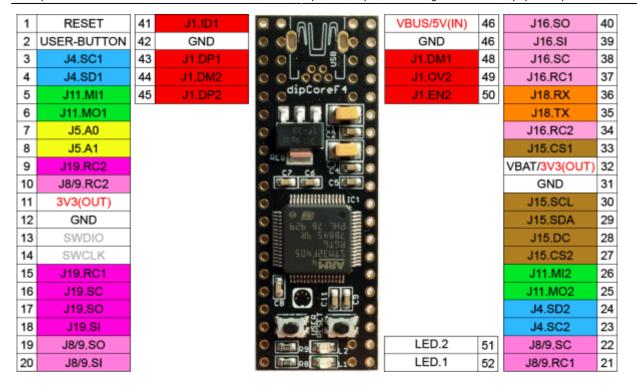


2025/11/07 11:01 3/6 dipCoreF4

	PIC / MIC)S8				STM32F	4 / MIC	DS32		
					dipCoreF4			DISCO / wCore	9	
				4	o	2 0	8	щ.		
DIP 40			DIP40	LQFP64	STMB2 F415RG	MOS32 Function	LQFP100	STM32F 407VG	Discovery	
큡	MIOS8 F	Function	ala	g	STI F4	₹ ₫	۵	STI 407	F4 Pin	Pin name
↓ Î	~	~	~	~	~	~	~	▼	~	▼
2	J5 RA0		2	14	GPIO	USER BUTT	23	USER BUTT	P1.12	PA0(6)-WKUP(5)
3	J5 RA1		3	58	12C1_SCL	J4B.SC	92	I2C1_SCL	P2.23	PB6
- 4	J5 RA2		- 4	59	I2C1_SDA	J4B.SD	93	USART1_RX	P2.24	PB7
5	J5 RA3		5	17	USART2_RX	J11.MI1	26	USART2_RX	P1.13	PA3(5)
6	J5 RA4		6	16	USART2_TX	J11.MO1	25	USART2_TX	P1.14	PA2(5)
7	J5 RA5		7	15	ADC123_IN1	J5.A0	24	ADC123_IN1	P1.11	PA1(5)
8	J5 RE0		8	25	ADC12_IN15	J5.A1	34	ADC12_IN15	P1.19	PC5(5)
9	J5 RE1		9	40	SP3_RC2(GPIO)	J19.RC2	66	LCD:SER/E2	P2.46	PC9
10	J5 RE2		10	26	SPI2_RC2(GPIO)	J8/9.RC2	35	ADC12_IN8	P1.22	PB0(5)
13	OSC1		13 14	46 49	JTMS-SVDIO JTCK-SVCLK		72 76	JTMS-SVDIO JTCK-SVCLK	P2.42 P2.39	PA13 PA14
15	J6/7_RC		15	50	SPI3_:RCI(NSS)	J19.RC1	77	SPI3_NSS:RC1	P2.40	PA15
16	J6/7_SC		16	55	SPI3_SCK	J19.SC	89	SPI3_SCK	P2.40	PB3
17	J6/7_SO		17	57	SPI3_MOSI	J19.SO	91	SPI3_MOSI	P2.26	PB5
18	J6/7_SI		18	56	SPI3_MISO	J19.SI	90	SPI3_MISO	P2.25	PB4
19	J8/9 S0		19	11	SPI2_MOSI	J8/9.SO	18	N.U.	P1.9	PC3(5)
20	J8/9 SI		20	10	SPI2 MISO	J8/9.SI	17	ADC123_IN12	P1.10	PC2(5)
21	J8/9 RC		21	27	SPI2_RCI(GPIO)	J8/9.RC1	36	ADC12 IN9	P1.21	PB1(5)
22	J8/9 SC	J10 SC	22	34	SPI2_SCK	J8/9.SC	52	SPI2_SCK	P1.37	PB13
23	J10 RC		23	30	I2C2_SDA	J4A,SC	48	I2C2 SDA	P1.35	PB11
24	J10 SO		24	29	I2C2_SCL	J4A,SD	47	I2C2_SCL	P1.34	PB10
25	J11 TX		25	51	UART4_TX	J11.MO2	78	DAC_CK(discovery)	P2.37	PC10
26	J11 BX		26	52	UART4_RX	J11.MI2	79	LCD:SER/RV	P2.38	PC11
27	J14		27	8	GPI0	J15.CS2	15	OTG_FS_EN	P1.8	PC0(5)
28	J15 RS	J10 MD	28	54	GPI0	J15.DC	83	UART5_RX	P2.34	PD2
29	J15 RW	J10 MO	29	53	GPI0	J15.SDA	80	UART5_TX	P2.35	PC12
30	J15 E		30	9	GPI0	J15.SCL	16	ADC123_IN11	P1.7	PC1(5)
33	J15 D0		33	33	GPI0	J15.CS1	51	SPI2_NSS:RC1	P1.36	PB12
34	J15 D1		34	24	SPI1_RC2(GPIO)	J16.RC2	33	ADC12_IN14	P1.20	PC4(5)
35	J15 D2		35	62	CAN1_TX	J18.TX	96	I2C1_SDA	P2.20	PB9
36	J15 D3		36	61	CAN1_RX	J18.RX	95	SP3_RC2	P2.19	PB8
37	J15 D4		37	20	SPI1_RC1(NSS)	J16.RC1	29	ADC12_IN4	P1.16	PA4(5)
38	J15 D5		38	21	SPI1_SCK	J16.SC	30	SPI1_SCK	P1.15	PA5(5)
39	J15 D6			22	SPII_MISO	J16.SI	32	SPII_MOSI	P1.17	PA7(5)
40	J15 D7			23	SPII_MOSI	J16.SO	31	SPII_MISO	P1.18	PA6(5)
			41	43	OTG_FS_ID	JIJD1	69	OTG_FS_ID	P2.41	PA10
			43 44	45 35	OTG_FS_DP OTG_HS_DM	J1.DP1 J1.DM2	71 53	OTG_FS_DP SPI2_MISO	CN5 (USB) P1.38	PA12 PB14
			45	36	OTG_HS_DM OTG_HS_DP	JI.DP2	54	SPI2_MISO SPI2_MOSI	P1.39	PB15
			46	42	OTG_FS_VBUS	J1.VBUS	68	OTG_FS_VBUS	P2.44	PA9
			48	44	OTG_FS_DM	J1.DM1	70	OTG_FS_DM	CN5 (USB)	PA11
			49	3	OTG_HS_OC	J1.0C2	8	J10/D9	P2.9	PC14(3)-OSC32_IN(5)
			50	4	OTG_HS_EN	J1;EN2	9	J10/D10	P2.10	PC15(3)-OSC32_OUT(5)
			51	38	LED BLUE	LED.2	64	DAC_MCK(discovery)	P2.48	PC7
			52	37	LED RED	LED.1	63	USART6_TX	P2.47	PC6
				2	N.U.		7	J10/D8	P2.12	PC13(3)
				5	OSC_IN		12	N.U.	P2.7	PH0(s)-OSC_IN
				6	OSC_OUT		13	N.U.	P2.8	PH1(5)-OSC_OUT
				28	N.U.		37	SPI1_RC1	P1.24	PB2
				39	N.U.		65	LCD:SER/E1	P2.45	PC8
				41	N.U.		67	LCD:RS	P2.43	PA8

The dipCoreF4 and the legacy MIOS32 ports.





Check dipBoardF4 for more details about the connectors.

BOM

Due to the small SMD, which is sometime a difficulty, the board is already assembled by manufacturer, except the connectors. The mini-USB is optional. Mouser BOM version 1to complete

Qty	Value	Package	Parts	Mouser	Reichelt	Conrad	LCSC	Notes
Head	ders	•	•			•		
3	1*20	male		649-68000-420HL			C50981	Termination Post Length max 2.57mm
Conr	nector	-	-		-	-		
1	mini-USB	ТНТ	USB	571-1734510-1			no!	for other ref take care about restricted area!

407VG vs 405RG

Legacy STM32F407 and 405 share the same characteristics.

The 405RG is a TQFP64, a 10x10mm package and only 64 pins.

No Ethernet MAC and camera interface.

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2025/11/07 11:01 5/6 dipCoreF4

Show Differences	STM32F405RG X	STM32F407VG X		
Description	High-performance foundation line, ARM Cortex-M4 core with DSP and FPU, 1 Mb/te Flash, 168 MHz CPU, ART Accelerator	High-performance foundation line, ARM Cortex-M4 core with DSP and FPU, 1 Mbyte Flash, 168 MHz CPU, ART Accelerator, Ethernet, FSMC		
Package	LQFP 64 10x10x1.4	LQFP 100 14x14x1.4		
Core	Arm Cortex-M4	Arm Cortex-M4		
Operating Frequency (MHz) (Processor speed)	168	168		
Co-Processor type	-	-		
Co-Processor frequency (MHz) (max)	-	-		
FLASH Size (kB) (Prog)	1024	1024		
Data E2PROM (B) (nom)	-	-		
RAM Size (kB)	192	192		
Timers (typ) (16 bit)	12	12		
Timers (typ) (32 bit)	2	2		
Other timer functions	2 x WDG, 24-bit down counter, RTC	2 x WDG, 24-bit down counter, RTC		
A/D Converters (12-bit channels)	16	16		
A/D Converters (16-bit channels)	-	-		
D/A Converters (typ) (12 bit)	2	2		
Comparator	-	-		
I/Os (High Current)	51	82		
Display controller	-	-		
CAN (typ)	2	2		
CAN FD (typ)	-	-		
i2C (typ)	3	3		
SPI (typ)	3	3		
12\$ (typ)	2	2		
USB Type	USB OTG FS + USB OTG FS/HS	USB OTG FS + USB OTG FS/HS		
USART (typ)	4	4		
UART (typ)	2	2		
Connectivity supported	-	-		
integrated op-amps	-	-		
Additional Serial Interfaces	-	Ethernet		
Parallel Interfaces	FSMC, SD/MMC	FSMC, SD/MMC		
Crypto-HASH	-	-		
TRNG (typ)	true	true		
SMPS	-	-		
Supply Voltage (V) (min)	1.8	1.8		
Supply Voltage (V) (max)	3.6	3.6		
Supply Current (µA) (typ) (Lowest power mode)	1.7	1.7		
Supply Current (µA) (typ) (Run mode (per Mhz))	215	215		
Operating Temperature (°C) (min)	-40	-40		
Operating Temperature (°C) (max)	105	105		
A/D Converters (typ)	-	-		
Number of Channels (typ)	-	-		
A/D Converters (typ)	_	_		

ST STM32F4xx series

Last update: 2020/03/31 18:14

In MIOS32

We use the same peripheral drivers same family, some compilation defined conditions were added for the specific pinout and type, number of ports. toDo

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