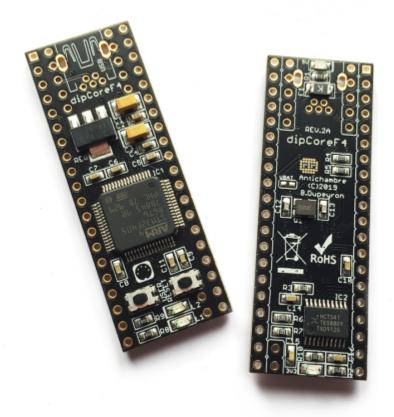
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dipCoreF4

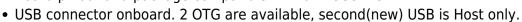


A reduced Core for your MIDIbox App, an STM32F405RG in a DIP40 format.



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.

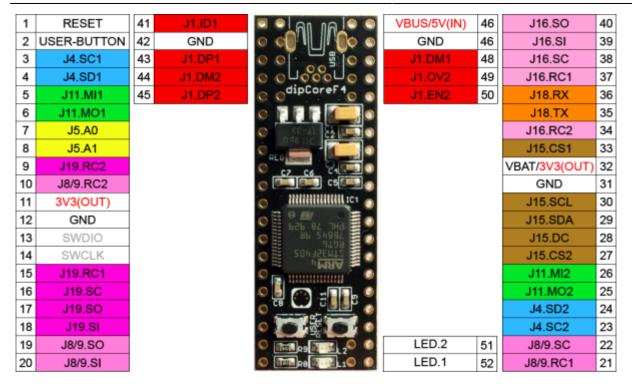
dipcoref4 beta.zip

Pinout

The dipCoreF4 and the legacy MIOS32 ports.

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Check dipBoardF4 for more details about the connectors.

First, was a chart.

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



	PIC / MIOS8				STM32F	4 / MIC	0\$32		
				dipCoreF4			DISCO / wCore	2	
				uipcorer4			DISCO / WCOII	5	
			9	2 2	32 ion	100	H		
DIP 40		DIP 40	QFP64	STMB2 F415RG	MOS32 Function	LQFP100	STM32F 407VG	Discovery	
=	MIOS8 Function	□	_2_	P. T.	2 1	_2	12 94	F4 Pin	Pin name
ΨŤ	T	_	_	▼	~	~	₩	~	▼
2	J5 RA0	2	14	GPIO	USER BUTT	23	USER BUTT	P1.12	PA0(6)-WKUP(5)
3	J5 RA1	3	58	I2C1_SCL	J4B.SC	92	12C1_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(s)
13	OSC1	13	46	JTMS-SVDIO		72	JTMS-SVDIO	P2.42	PA13
14	OSC2	- 14	49	JTCK-SWCLK	HO DOL	76	JTCK-SWCLK	P2.39	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 57	SPI3_SCK	J19.SC	89	SPI3_SCK SPI3_MOSI	P2.28 P2.26	PB3 PB5
17	J6/7_SO	17	56	SPI3_MOSI SPI3 MISO	J19.SO	91			PB4
18	J6/7_SI J8/9 S0	19	11	SPI2 MOSI	J19.SI J8/9.SO	90 18	SPI3_MISO N.U.	P2.25 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_MISO SPI2_RCI(GPIO)	J8/9.RC1	36	ADC12_IN9	P1.21	PB1(s)
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	12C2_SDA	P1.35	PB11
24	J10 SO	24	29	12C2_SCL	J4A,SD	47	12C2 SCL	P1.34	PB10
25	J11 TX	25	51	UART4_TX	J11.MO2	78	DAC_CK(discovery)	P2.37	PC10
26		26	52	UART4_RX	J11.MI2	79	LCD:SER/RV	P2.38	PC11
27	J14	27	8	GPIO	J15.CS2	15	OTG_FS_EN	P1.8	PC0(5)
28	J15 RS J10 MD	28	54	GPIO	J15.DC	83	UART5_RX	P2.34	PD2
29	J15 RW J10 MO	29	53	GPIO	J15.SDA	80	UART5_TX	P2.35	PC12
30	J15 E	30	9	GPIO	J15.SCL	16	ADC123_IN11	P1.7	PC1(5)
33	J15 D0	33	33	GPIO .	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	12C1_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(s)
39	J15 D6	39	22	SPII_MISO	J16.SI	32	SPI1_MOSI	P1.17	PA7(5)
40	J15 D7	40	23	SPII_MOSI	J16.SO	31	SPI1_MISO	P1.18	PA6(5)
		41	43	OTG_FS_ID	J1.ID1	69	OTG_FS_ID	P2.41	PA10
		43	45	OTG_FS_DP	J1.DP1	71	OTG_FS_DP	CN5 (USB)	PA12
		- 44	35	OTG_HS_DM	J1.DM2	53	SPI2_MISO	P1.38	PB14
		45	36	OTG_HS_DP	J1.DP2	54	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.OC2	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 ce	SPI1_RC1	P1.24	PB2
			39	N.U.		65 e7	LCD:SER/E1	P2.45	PC8
			41	N.U.		67	LCD:RS	P2.43	PA8

BOM

Due to the small SMD, which is sometime a difficulty to solder, the board is already assembled by

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manufacturer, except the connectors.

The mini-USB is optional.

Qty	Value	Package	Parts	Mouser	Reichelt	Conrad	LCSC	Notes
Head	lers							
3	1*20	male		649-68000-420HL			C50981	Termination Post Length max 2.57mm
Conn	nector							
1	mini-USB	THT	USB	571-1734510-1			ın∩ı	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.

Show Differences	8TM32F405RG ★	STM32F407VG ¥		
Description	High-performance foundation line, ARM Cortex-M4 core with DSP and FPU, 1 Mbyte 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, Etnemet, 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	-	-		
VOs (High Current)	51	82		
Display controller	-	-		
CAN (typ)	2	2		
CAN FD (typ)	-	-		
12C (typ)	3	3		
SPI (typ)	3	3		
12 \$ (typ)	2	2		
U \$B 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 (μΑ) (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

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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

For any questions, informations or observations do not hesitate to contact me (Forum). Antichambre.

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