																		STM32F405F	RGT_p	inNo		
Pin N°	Pin Name VBAT	Pin Type	5V pin Tolerant	Functions	AF0	AF1	AF2	AF3	AF4	AF5	AF6	AF7	AF8	AF9	AF10	AF11	AF12	AF13	AF14	AF15	Default Function HydraBus	HydraNFC TRF7970A
2	PC13	NO.	YES	EVENTOUT / RTC AF1		-		-		-	-	-					-	-		_	+343	
2 F	C14-OSC32_IN (PC14)	NO.	YES	EVENTOUT / OSC32 IN(4)															Ė		Optional DTC 32 788KH+	
Ť	PC15- OSC32_OUT (PC15)		120																		Optional	
		NO	YES	EVENTOUT / OSC32_OUT(4)		-		-			-								-		RTC 32,768KHz	
5	PH0-OSC_IN (PH0)	NO	YES	EVENTOUT / OSC_IN(4)		-		-	-		-		-	-							Quartz 8MHz	
6	PH1-OSC_OUT (PH1) NRST	NO.	YES	EVENTOUT / OSC_OUT(4)		-		-	-		-	-					-	-	÷		Quartz 8MHz Reset Button / SWD_DEBUG	
Τ	MICO																				TRESCHOUGHT OFFD_DEDOO	TRF7970A IO2 pin19 (Special Direct Mode TX Enable) (MCU Out set to "1" for SPI with SS)
8	PC0	NO	YES	ADC123_IN10					-					-	OTG_HS_ULPI_STP					EVENTOUT		(MCU Out set to "1" for SPI with SS) TRF7970A IO4 SS pin21 (MCU SPI2 CS Master)
9	PC1	WO	YES	ADC123_IN11	-	-					-					ETH_MDC				EVENTOUT		(MCU SPI2 CS Master) TRF7970A IO6_MISO SPI pin23 (MCU SPI2 MISO Master)
10	PC2	NO	YES	ADC123_IN12		-		-	-	SPI2_MISO SPI2_MOSI	I2S2ext_SD		-	-	OTG_HS_ULPI_DIR	ETH_MI_TXD2		-		EVENTOUT		TRF7970A IO7 MOSI SPI pin24
11	PC3 VSSA	NO.	YES	ADC123_IN13						SPI2_MOSI I2SZ_SD					OTG_HS_ULPI_NXT	ETH_MI_TX_CLK				EVENTOUT		(MCU SPI2 MOSI Master)
13	VDDA	-	-			-		-	-	-	-	-					-	-		-		HydraBus UBTN
	PA0-WKUP			ADC123 IN0 / WKUP(4)		TIM2_CH1 TIM2_ETR															UBTN (User Button 0) Can be disabled by removing Jumper	HydraBus UBTN ABORT_BUTTON (MCU In)
14	(PA0)	NO	YES	WKUP(4)		TIM2_ETR	TIM 5_CH1	TIM8_ETR	•	-	-	USART2_CTS	UART4_TX			ETH_MII_CRS ETH MII_RX_CLK				EVENTOUT	UMP1 UBTN	TRF7970A IRQ pin13
15	PA1	NO	YES	ADC123_IN1		TIM2_CH2	TIM5_CH2					USART2_RTS	UART4_RX			ETH_MII_RX_CLK ETH_RMII_REF_ CLK				EVENTOUT		(MCU Input IRQ_PIN)
16	PA2	NO	YES	ADC123_IN2		TIM2_CH3	TIM5_CH3	TIM9_CH1				USART2_TX				ETH_MDIO				EVENTOUT		TRF7970A IO1 pin18 (MCU Out set to "1" for SPI with SS)
17	PA3	NO	YES	ADC123_IN3		TIM2_CH4	TIM5_CH4	TIM9_CH2				USART2_RX			OTG_HS_ULPI_D0	ETH_MILCOL				EVENTOUT		TRF7970A IO0 pin17 (MCU Out set to "0" for SPI with SS)
18	VSS VDD	-	-	- :				-		- :			- :					- :			•	
																					ULED (User LED 0)	
20	PA4	NO	NO (3.3V)	ADC12_IN4 / DAC1_OUT						SPI1_NSS	SPI3_NSS I2S3_WS	USART2_CK					OTG_HS_SOF	DCMI_HSYNC		EVENTOUT	(User LED 0) Can be disabled by removing Jumper JMP1 ULED	TOUTHORN OUR OLIVERS
	PAS		NO. 00.00	ADC12_IN5 / DAC2_OUT		TIM2_CH1 TIM2_ETR		Tu 40		0014					070 110 117					0.5		TRF7970A SYS_CLK pin27 (MCU SPH SCK Slave) (Sniffer mode)
21		NO.	NO (3.3V)		-		THE	TIM8_CH1N		SPI1_SCK				Table	OTG_HS_ULPI_CK			DOI:		EVENTOUT		(MCU SPI1 MISO Not used/Not connected)
22	PA6	I/O	YES	ADC12_IN6		TIM1_BKIN	TIM3_CH1	TIM8_BKIN	-	SPI1_MISO		-		TIM13_CH1		-		DCMI_PIXCK	i i	EVENTOUT		TRE7970A MOD pin14 (IN/OUT)
23	PA7	NO	YES	ADC12_IN7		TIM1_CH1N	TIM3_CH2	TIM8_CH1N		SPI1_MOSI				TIM14_CH1		ETH_MII_RX_DV ETH_RMII_CRS_DV				EVENTOUT		(MCU SPIT MOSI Slave) (Sniffer mode)
24	PC4	NO.	YES	ADC12 IN14												ETH MII RXD0 ETH_RMII_RXD0				EVENTOUT		TRF7970A IO5 pin22 (not used for SPI mode / Data clock OUT) (MCU Out set to 0 default)
-	FC4	10	163	ADC12_IN14	-											ETH_RMII_RADO			Ė	EVENTOUT		TRF7970A IO3 pin20 (Special Direct Mode TX Data)
25	PC5	NO.	YES	ADC12 IN15												ETH_MII_RXD1 ETH_RMII_RXD1				EVENTOUT		(not used for SPI mode) (MCU Out set to 0 default / NA in SPI with SS)
				_																		LED D2 or TST_PIN (TST_ON/TST_OFF) MCU Out fastest for oscilloscope timing checks
26	PB0	NO	YES	ADC12_IN8		TIM1_CH2N	TIM3_CH3	TIM8_CH2N	-		-		-	-	OTG_HS_ULPI_D1	ETH_MI_RXD2			·	EVENTOUT		TRF7970A ASK_OOK pin12 (IN/OUT)
27	PB1 PB2-BOOT1	NO	YES	ADC12_IN9		TIM1_CH3N	TIM3_CH4	TIM8_CH3N	-			-		-	OTG_HS_ULPI_D2	ETH_MI_RXD3		-	ŀ	EVENTOUT		
28	(PB2)	NO	YES		-			-	-	SPI2_SCK I2S2_CK				-				-		EVENTOUT		TRF7970A DATA_CLK pin26 (MCU SPI2 SCK Master)
29	PB10	NO	YES		-	TIM2_CH3		-	I2C2_SCL	12S2_CK		USART3_TX		-	OTG_HS_ULPI_D3	ETH_MII_RX_ER ETH_MII_TX_EN ETH_RMII_TX_EN	-	-		EVENTOUT		(MCU SPI2 SCK Master) TRF7970A EN (Chip Enable) pin28 (MCU Out set to *1"to enable TRF7970A)
30	PB11 VCAP_1	NO.	YES			TIM2_CH4			12C2_SDA	-	-	USART3_RX		-	OTG_HS_ULPI_D4	ETH_RMIT_TX_EN	-			EVENTOUT		(MCU Out set to "1"to enable TRF7970A)
32	VDD	-	-			-				SDI2 NISS	-			-		ETH MILTYDO					use in	
33	PB12	NO.	YES			TIM1_BKIN		-	I2C2_SMBA	SPI2_NSS I2S2_WS	-	USART3_CK	-	CAN2_RX	OTG_HS_ULPI_D5	ETH_MII_TXD0 ETH_RMII_TXD0	OTG_HS_ID		-	EVENTOUT		
34	PB13	NO.	YES	OTG_HS_VBUS		TIM1_CH1N		-	-	SPI2_SCK I2S2_CK	-	USART3_CTS	-	CAN2_TX	OTG_HS_ULPI_D6	ETH_RMITXD1 ETH_RMITXD1	-	-	-	EVENTOUT	Supply VUSB (USB1 connector)	
35	PB14	NO	YES			TIM1_CH2N		TIM8_CH2N	-	SPI2_MISO SPI2_MOSI I2SZ_SD	I2S2ext_SD	USART3_RTS		TIM12_CH1			OTG_HS_DM		-	EVENTOUT	(USB1 connector) USB D+ (USB1 connector)	
36 37	PB15 PC6	NO NO	YES		RTC_50Hz		TIM3_CH1	TIM8_CH3N TIM8_CH1		12S2_SD 12S2_MCK			USART6_TX	TIM12_CH2			OTG_HS_DP SDIO_D6	DCMI_D0	-	EVENTOUT		
38	PC7	NO.	YES					TIM8_CH2			12S3_MCK		USART6_RX				SDIO_D7			EVENTOUT	MissaCD Court CD Abite	•
39	PC8	NO	YES			-	TIM3_CH3						USART6_CK				SDIO_D0	DCMI_D2		EVENTOUT	SDIO_D0 MicroSD Card SD 4bits	
41	PC9 PA8	NO NO			MCO2 MCO1	TIM1_CH1		TIM8_CH4	12C3_SCL	I2S_CKIN		USART1_CK			OTG_FS_SOF		SDIO_D1	DCMI_D3		EVENTOUT EVENTOUT	SDIO_D1	
12	PA9 PA10	10	YES	OTG_FS_VBUS		TIM1_CH2 TIM1_CH3	- 1	- 1	I2C3_SMBA		- 1	USART1_TX USART1_RX	- 1		OTG_FS_ID			DCMI_D0 DCMI_D1	1	EVENTOUT EVENTOUT		
14	PA11	NO	YES		-	TIM1_CH4						USART1_CTS		CAN1_RX	OTG_FS_DM					EVENTOUT	USB D- (USB0 connector)	
45	PA12	NO	YES			TIM1_ETR						USART1_RTS		CAN1_TX	OTG_FS_DP					EVENTOUT	USB D+ (USB0 connector)	
6	PA13 JTMS-SWDIO)	NO	YES		JTMS-SWDIO									1						EVENTOUT	SWDIO	
47 48	VCAP_2 VDD			- :																		
19 (PA14 JTCK-SWCLK)	NO	YES		TCK-SWCLK															EVENTOUT	SWCLK	(MCII PRIA NOP Clause)
50	PA15 (JTDI)	NO	YES		JTDI	TIM 2_CH1 TIM 2_ETR				SPI1_NSS	SPI3_NSS/ I2S3S_WS						-			EVENTOUT	W	(MCU SPI1 NSS Slave) (Sniffer mode)
1	PC10	NO	YES								SPI3_SCK/ I2S3S_CK	USART3_TX/	UART4_TX				SDIO_D2	DCMI_D8		EVENTOUT		
52	PC11	NO	YES		-					I2S3ext_SD	SPI3_MISO/	USART3_RX	UART4_RX				SDIO_D3	DCMI_D4		EVENTOUT	MicroSD Card SD 4bits SDIO_D3 MicroSD Card SD 4bits	
53	PC12	NO	YES			-					SPI3_MOSI I2S3_SD	USART3_CK	UART5_TX				SDIO_CK	DCMI_D9		EVENTOUT	MicroSD Card SD 4bits SDIO_CK MicroSD Card SD 4bits	
34	PD2	NO	YES		-		TIM3_ETR						UART5_RX				SDIO_CMD	DCMI_D11	-	EVENTOUT	SDIO_CMD	LED D3
55	PB3 (JTDQ/ TRACESWO)	NO	YES		JTDO/ TRACESWO	TIM2_CH2				SPI1_SCK	SPI3_SCK I2S3_CK									EVENTOUT		LED D3 (MCU Out)
56	PB4 (NJTRST)	NO	YES		NJTRST		TIM3_CH1			SPI1 MISO	SPI3 MISO	I2S3ext_SD								EVENTOUT		LED D4 (MCU Out)
57	PB5	NO	YES				TIM3_CH2		I2C1_SMBA		SPI3_MOSI I2S3_SD	-		CAN2_RX	OTG HS ULPI D7	ETH_PPS_OUT		DCMI_D10	Ė	EVENTOUT		LED D5 (MCU Out)
58	PB6	10	YES				TIM4_CH1		I2C1_SCL			USART1_TX		CAN2_TX				DCMI_D5	Ĺ	EVENTOUT		BUTTON K2 (MCU In)
		NO	YES				TIM4_CH2		I2C1_SDA			USART1_RX					FSMC_NL	DCMI_VSYNC	Ė	EVENTOUT		BUTTON K1 (MCU In)
59 I	PB7						0112														Default Boot from Flash (pull-down resistor 2.2Kohms)	•
	PB7 BOOTO																				Control Control Control Control	
59 60	воото	IIO	AEG				TIM4 CH2	TIM10 CH1	pc1 sc					CAN1 DV	_	ETH MII TYD?	SDIO D4	DCMI De	١.	EVENTOUT		(MCU In)
		I I/O	YES YES					TIM10_CH1		SPI2_NSS I2S2_WS				CAN1_TX		ETH_MII_TXD3	SDIO_D4 SDIO_D6	DCMI_D6		EVENTOUT		BUTTON K3 (MCU In) (MCU In) (MCU In)

Pin 3.3V Only !! Not 5V tolerant Default Function HydraBus HydraBus Conf HydraNFC TRF7970A

Pin Pin	TA A A A A A A A A A A A A A A A A A A	Pin Type	PSV pin SV pin S	Functions OTG HS VBUS OTG HS VBUS	AF0	TIM1 BKIN TIM1 CHIN TIM1 CHIN TIM1 CHIN TIM1 CHIN TIM1 CHIN	AF2	AF3	AF4	AF8	AF6	AFT	AF8	AF9 CAN2 RX CAN2 TX TIM12 CH1 TIM12 CH2	AF10 OTG HS ULPI D5	AF11	AF12	AF13	AF14	AF15		HydraNiFC TRF7970A
VSSA	A A A A A A A A A A A A A A A A A A A		YES	OTG HS VBUS	MCO2	TIM1_CH1N TIM1_CH2N TIM1_CH3N TIM1_CH4		TIM8_CH3N TIM8_CH3		SPI2_SCK I2S2_CK SPI2_MISO SPI2_MOSI I2S2_SD		USART3_CTS USART3_RTS		CAN2_TX TIM12_CH1		ETH MII TXDO ETH RMII TXDO ETH RMII TXD1 ETH RMII TXD1				EVENTOUT	USB ID USB ID USB connector) Supply VUSB USB' connector)	
VODA	NA S S S S S S S S S S S S S S S S S S S		YES	OTG HS VBUS	MCO2	TIM1_CH1N TIM1_CH2N TIM1_CH3N TIM1_CH4		TIM8_CH3N TIM8_CH3		SPI2_SCK I2S2_CK SPI2_MISO SPI2_MOSI I2S2_SD		USART3_CTS USART3_RTS		CAN2_TX TIM12_CH1		ETH_MII_TXD0 ETH_RMII_TXD0 ETH_MII_TXD1				EVENTOUT	(USB1 connector) Supply VUSB (USB1 connector)	
WOD WOD	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		YES	OTG HS VBUS	MCO2	TIM1_CH1N TIM1_CH2N TIM1_CH3N TIM1_CH4		TIM8_CH3N TIM8_CH3		SPI2_SCK I2S2_CK SPI2_MISO SPI2_MOSI I2S2_SD		USART3_CTS USART3_RTS		CAN2_TX TIM12_CH1		ETH_MII_TXD0 ETH_RMII_TXD0 ETH_MII_TXD1 ETH_RMII_TXD1				EVENTOUT	(USB1 connector) Supply VUSB (USB1 connector)	
VCAP 1 V	2 2 2 3 3 4 4 5 5 5 8 8 9 9 1 1 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3		YES	OTG HS VBUS	MCO2	TIM1_CH1N TIM1_CH2N TIM1_CH3N TIM1_CH4		TIM8_CH3N TIM8_CH3		SPI2_SCK I2S2_CK SPI2_MISO SPI2_MOSI I2S2_SD		USART3_CTS USART3_RTS		CAN2_TX TIM12_CH1		ETH_MII_TXD0 ETH_RMII_TXD0 ETH_MII_TXD1 ETH_RMII_TXD1				EVENTOUT	(USB1 connector) Supply VUSB (USB1 connector)	-
P813 P814 P815 P816 P816 P816 P816 P817 P817 P817 P817 P818 P819 P819 P811 P817 P819 P819 P819 P819 P819 P819 P819 P819	2 3 3 4 4 5 5 8 8 9 9 1 1 1 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3		YES	OTG HS VBUS	MCO2	TIM1_CH1N TIM1_CH2N TIM1_CH3N TIM1_CH4		TIM8_CH3N TIM8_CH3		SPI2_SCK I2S2_CK SPI2_MISO SPI2_MOSI I2S2_SD	I2S2ext_SD	USART3_CTS USART3_RTS		CAN2_TX TIM12_CH1		ETH_MII_TXD0 ETH_RMII_TXD0 ETH_MII_TXD1 ETH_RMII_TXD1				EVENTOUT	(USB1 connector) Supply VUSB (USB1 connector)	-
P813 P814 P814 P815 P815 P816 P829 P839 P841 P843 P843 P843 P843 P843 P844 P841 P841 P841 P841 P848 P86 P88 P88 P88 P88 P88 P88 P88 P88 P8	3 4 4 5 5 8 9 9 9 1 1 1 1 2 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3		YES	OTG HS VBUS	MCO2	TIM1_CH1N TIM1_CH2N TIM1_CH3N TIM1_CH4		TIM8_CH3N TIM8_CH3		SPI2_SCK I2S2_CK SPI2_MISO SPI2_MOSI I2S2_SD	12S2ext_SD	USART3_CTS USART3_RTS	USART6_CK	CAN2_TX TIM12_CH1		ETH RMII TXD0 ETH MII TXD1 ETH RMII TXD1			-	EVENTOUT	(USB1 connector) Supply VUSB (USB1 connector)	•
P814 P815 PC8 PC8 PC8 PC8 PC9 PA11 PA12 PA12 PA12 PA12 PA12 PA12 PA12	4		YES	OTG MS VBUS	MCO2	TIM1_CH2N TIM1_CH3N		TIM8_CH3N TIM8_CH3		SPI2_MISO SPI2_MOSI I2S2_SD	12S2ext_SD	USART3_RTS	USART8_CK	TIM12_CH1	OTG HS ULPI D6	ETH_RMII_TXD1						
P815 PC8 PC8 PC9 PA11 PA12 PA13 PA13 PA13 PA13 PA13 PA13 PA14 PA14 PA14 PA15 PA16 PA16 PA16 PA16 PA16 PA16 PA16 PA16	5 5 8 8 9 9 1 1 2 2 3 3 3 WOODO 1 1 2 2 2 2 2 2 2 2 2 2 2 2 3 3 3 3 3 3		YES		MCO2	TIM1_CH3N		TIM8_CH3N TIM8_CH3	: 2C3_SDA	SPI2_MOSI I2S2_SD	12S2ext_SD		USART6_CK							EVENTOUT.		
P815 PC8 PC8 PC9 PA11 PA12 PA13 PA13 PA13 PA13 PA13 PA13 PA14 PA14 PA14 PA15 PA16 PA16 PA16 PA16 PA16 PA16 PA16 PA16	5 5 8 8 9 9 1 1 2 2 3 3 3 WOODO 1 1 2 2 2 2 2 2 2 2 2 2 2 2 3 3 3 3 3 3		YES		MCO2	TIM1_CH3N		TIM8_CH3N TIM8_CH3	I2C3_SDA	SPI2_MOSI I2S2_SD			USART6_CK				OTG_HS_DM				USB D- (USB1 connector)	4
PCB PCB PCB PCB PCB PA11 PA12 PA12 PA12 PA13 PC10 PC10 PC10 PC10 PC11 PC12 PC2 PC2 PC2 PC3 PC4 PC4 PC4 PC5 PC6 PC7	8 9 9 1 1 2 2 3 3 WOOD 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		YES		MCO2	TIM1_CH4		TIM8_CH3	12C3_SDA			USART1 CTS	USART6_CK	TIM12_CH2							USB D+	
PC0 PA11 PA12 PA13 PA13 PA13 PA14 PA14 PA14 PA14 PA16 PC10 PC10 PC11 PC11 PC12 PC2 BOOTO VSS PB0 PB0 PB0 PB0 PB0 PB0 PB0 PB0 PB1 PB1 PB1 PA1 PA1 PA6 PA6 PA1 PA6 PA6 PA7 PA7 PA6 PA7	9 1 1 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	00 00 00 00 00 00 00 00 00 00 00 00 00	YES		JTMS-SWDIO				12C3_SDA	12S_CKIN .		USART1 CTS	USART6_CK				OTG_HS_DP		-	EVENTOUT	(USB1 connector) MicroSD Card SD 4bits	
PA11 PA12 PA13 PA13 PA13 PA13 PA13 PA13 PA13 PA13	1 2 2 3 3 MVDIO) 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	ON O	YES		JTMS-SWDIO		TIM3_CH4	TIM8_CH4	12C3_SDA	I2S_CKIN		USART1 CTS					SDIO_D0	DCMI_D2	-	EVENTOUT	SDIO_D0 MicroSD Card SD 4bits	
PA12 (PA13 M) (PA13 M) (PA13 M) (PA13 M) (PA14 M) (PA14 M) (PA15 M) (PA16 M)	2 2 3 3 MODO) 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	100 100 100 100 100 100 100 100 100	YES		-							USART1 CTS					SDIO_D1	DCMI_D3		EVENTOUT	SDIO_D1	
PA13	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	00 00 00 00 00 00 00 00 00 00 00 00 00	YES		-			-						CAN1 RX	OTG_FS_DM				.	EVENTOUT	USB D- (USB0 connector)	ſ
PA13	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	00 00 00 00 00 00 00 00 00 00 00 00 00	YES		-	·						USART1_RTS		CAN1_TX	OTG_FS_DP					EVENTOUT	USB D+	
VocAP 2	2 2 2 10 2 2 2 10 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	00 01 01 01 01 01 01 01 01	YES		-			-				USARI1_RIS		CAN1_IX	OTG_FS_DP				-		(USB0 connector)	-
POD PA14 JTCKSWC1A) POT PO	0 4 4 4 WCLK) 0 1 1 2 2 2 1 7 7 3 3 3 9 KUIP (U)	00 01 01 01 01 01 01 01	YES YES YES YES YES YES YES YES YES		TCK-SWCLK					-				_						EVENTOUT	SWDIO	
(JTCKSWCLS)	0 1 2 2 2 2 1 TO S 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	00 01 01 01 01 01 01 01	YES YES YES YES YES YES YES YES YES		TCK-SWCLK														-			
PC11 PC12 P02 P02 P03 P07 P08	1 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3	10 10 10 10 10	YES YES YES YES YES YES YES YES YES																	EVENTOUT	SWCLK	ſ
PC11 PC12 P02 P02 P03 P07 P08	1 2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3	10 10 10 10 10	YES YES YES YES YES YES								SPI3_SCK/ I2S3S_CK	HOLDTO TW					0010 00	0044.00			MicroSD Card SD 4bits	·
P012 P02 P03 B0070 VSS VDD P88 P88 P88 P89 P89 P89 P80 P80 P80 P80 P81 P80 P81 P81 P81 P81 P81 P81 P81 P82 P83	2 2 2 2 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	10 10 10 10	YES YES YES YES YES									USART3_TX/	UART4_TX				SDIO_D2	DCMI_D8			MicroSD Card SD 4hits	-
PO2	2 TO S S D D S S S S S S S S S S S S S S S	10 10 10	YES YES YES	-						I2S3ext_SD	SPI3_MISO/	USART3_RX	UART4_RX		-		SDIO_D3	DCMI_D4		EVENTOUT	SDIO_D3 MicroSD Card SD 4bits	
BO0T0 VSS VS	70 S S S S S S S S S S S S S S S S S S S	100	YES YES YES	:							SPI3_MOSI I2S3_SD	USART3_CK	UART5_TX	-			SDIO_CK	DCMI_D9		EVENTOUT	SDIO_CK	
BO0T0 VSS VS	70 S S S S S S S S S S S S S S S S S S S	NO NO	YES YES YES	-			TIM3_ETR						UART5_RX				SDIO_CMD	DCMI_D11		EVENTOUT	MicroSD Card SD 4bits SDIO_CMD	<u> </u>
VSS VSS VSD VSD	7 7 8 8 8 9 9 KUP	NO NO	YES																		Default Boot from Flash (pull-down resistor 2 2Kohms)	<u> </u>
PB6 PB8 PB8 PB9 PA0.WKUP (PA0) PB0 PB0 PR0.WKUP (PA0) PB0 PB1 PB1 PB1 PB1 PA1 PA5 PA5 PA1 PA5 PA5 PA1 PA5 PA5 PA1 PA5 PA5 PA5 PA1 PA5	7 3 3 3 (KUP	NO NO	YES	-	-		-									-				-	· · · · · · · · · · · · · · · · · · ·	
P88 P89 P89 P80 P80 P80 P80 P80 P83 (ITDO TRACESWO) P81 P81 P81 PA1 PA2 PA2 PA3 PA3 PA4 PA4 PA4 PA4 PA5 PA5 PA5 PA5 PA6 PA7 P86 P87 P87 P86 P87	S S KUP	NO NO	YES			-				-	-	-	-	-						-		BUTTON K1
P88 P89 PAC-WKUP (PAG) PB0 PB0 UTDOV (PAG) PB10 PB10 PB11 PA5 PA1 PA5 PA5 PA1 PA5	KUP	NO	YES				TIM4_CH2	-	I2C1_SDA			USART1_RX		-			FSMC_NL	DCMI_VSYNC		EVENTOUT		BUTTON K1 (MCU In)
P88 P89 PAC-WKUP (PAG) PB0 PB0 UTDOV (PAG) PB10 PB10 PB11 PA5 PA1 PA5 PA5 PA1 PA5	KUP	NO	YES			L. I	TIM4_CH1	L	12C1_SCL	L. I		USART1_TX		CAN2_TX	L .			DCMI_D5		EVENTOUT		BUTTON K2 (MCU in)
P80 PAG,WKUP (PAG) P80 P80 P83 GITOO (PAG) PB4 PB5 PB6 PB1 PA1 PA6 PA7 DA6 PA7 PA8 PA8	KUP D)						TIM4_CH3	TIM10_CH1	12C1_SCL					CAN1_RX		ETH_MII_TXD3	SDIO_D4	DCMI_D6		EVENTOUT		BUTTON K3 (MCU In)
PAGWKUP PB0 PB0 PB0 PB1 PB1 PB1 PB1 PA1 PA6 PA7 PA5 PA6 PA7 PA5 PA7 PA6 PA7 PA7 PA6 PA7 PA7 PA6 PA7 PA7 PA7 PA8 PA7 PA8 PA8 PA7 PA8 PA8 PA7 PA8	KUP))	NO			-	-				SPI2_NSS I2S2_WS	-				<u> </u>	EIT_MI_IAD3			-			BUTTON K4 (MCU in)
PAG PAG	0)		YES		_		TIM4_CH4	TIM11_CH1	I2C1_SDA	12S2_WS	-		-	CAN1_TX			SDIO_D5	DCMI_D7	-	EVENTOUT		
PAG PAG	0)																				(User Button 0)	HydraBus UBTN ABORT_BUTTON (MCU In)
P83 (ITDO TRACESWO) P83 (ITDO TRACESWO) P86 P86 P81 PA1 PA4 PA5	,	NO	YES	ADC123 IN0 / WKUP(4)	100	TIM2_CH1 TIM2_ETR	TIM 5_CH1	TIM8_ETR				USART2_CTS	UART4_TX			ETH_MII_CRS				EVENTOUT	Can be disabled by removing Jumper JMP1 UBTN	
P83 (ITDO TRACESWO) P83 (ITDO TRACESWO) P86 P86 P81 PA1 PA4 PA5	, I																					LED D2 or TST_PIN (TST_ON/TST_OFF) MCU Out fastest for oscilloscope timing checks
TRACESWO P84 P47 P46 P47 P47		NO	YES	ADC12_IN8		TIM1_CH2N	TIM3_CH3	TIM8_CH2N							OTG_HS_ULPI_D1	ETH_MI_RXD2			-	EVENTOUT		MCU Out fastest for oscilloscope timing checks
TRACESWO P84 P47 P46 P47 P47	3 O/				JTDO/ TRACESWO						SPI3 SCK											LED D3 (MCU Out)
P86 P81 P81 PA1 PA6 PA7 PA5 PA15 (JT0) PB11 PA3 PA2 PC0	SWO)	NO	YES		TRACESWO	TIM2_CH2			-	SPI1_SCK	12S3_CK			-			-	-	-	EVENTOUT		LED D4
P81 PA1 PA6 PA7 PA6 PA15 (JT0) P811 PA3 PA2 PC0	ST)	NO	YES		NJTRST		TIM3_CH1			SPI1_MISO	SPI3_MISO	I2S3ext_SD								EVENTOUT		LED D4 (MCU Out)
PA1 PA6 PA7 PA6 PA15 (JT0) PB11 PA3 PA2 PC0	5	NO	YES				TIM3_CH2		I2C1 SMBA	SPI1 MOSI	SPI3_MOSI I2S3 SD			CAN2_RX	OTG_HS_ULPI_D7	ETH_PPS_OUT		DCMI_D10	.	EVENTOUT		LED D5 (MCU Out)
PA1 PA6 PA7 PA6 PA15 (JT0) PB11 PA3 PA2 PC0		NO	YES	ADC12_IN9		TIM1 CH3N	TIM3_CH4	TIM8_CH3N							OTG_HS_ULPI_D2	ETH_MI_RXD3				EVENTOUT		TRF7970A ASK_OOK pin12 (IN/OUT)
PA6 PA7 PA5 PA15 PA15 PA15 PA16 PA17 PA3 PA2 PC0	_	10	163	ADC12_INS		TIMI_CH3N	TIMS_CH4	TIME_CH3N	-		-		-		OTG_HS_OLFT_D2				-	EVENTOUT		TRF7970A IRQ pin13 (MCU Input IRQ_PIN)
PA7 PA5 PA15 (JTDI) PB11 PA3 PA2 PC0	.	NO	YES	ADC123_IN1		TIM2_CH2	TIM5_CH2					USART2_RTS	UART4_RX			ETH_MII_RX_CLK ETH_RMII_REF_ CLK			.	EVENTOUT		
PA7 PA5 PA15 (JTDI) PB11 PA3 PA2 PC0		NO	YES	ADC12_IN6				TIM8 BKIN		SPI1 MISO				TIM13 CH1				DCMI_PIXCK		EVENTOUT		(MCU SPI1 MISO Not used/Not connected)
PA5 PA15 (JTDI) PB11 PA3 PA2 PC0	1	10	163	ADC12_IN0		TIMI_DKIN	TIMS_CHT	TIMO_BRITE	-	SFII_MISO	-		-	TIMI3_CHI				DUM_FINUN	-	EVENTOUT		TRF7970A MOD pin14 (IN/OUT) (MCU SPI1 MOSI Slave)
PA15 (JTDI) PB11 PA3 PA2 PC0	,	NO	YES	ADC12_IN7		TIM1_CH1N	TIM3 CH2	TIM8_CH1N		SPI1_MOSI				TIM14_CH1		ETH MII RX DV ETH RMII CRS DV			.	EVENTOUT		(Sniffer mode)
PA15 (JTDI) PB11 PA3 PA2 PC0																						TRF7970A SYS_CLK pin27 (MCU SPH SCK Slave)
(JTDI) PB11 PA3 PA2 PC0 PC5		NO	NO (3.3V)	ADC12_IN5 / DAC2_OUT		TIM2_CH1 TIM2_ETR		TIM8_CH1N		SPI1_SCK					OTG_HS_ULPI_CK					EVENTOUT		(Sniffer mode)
PB11 PA3 PA2 PC0 PC5	5	NO	YES		JTDI	TIM 2_CH1 TIM 2_ETR				SPI1_NSS	SPI3_NSS/ I2S3S_WS								.	EVENTOUT	i '	(MCU SPI1 NSS Slave) (Sniffer mode)
PA3 PA2 PC0 PC6		NO							1000 OD 4			LIGARITA DV			070 110 11101 04	ETH_MII_TX_EN ETH_RMII_TX_EN						TRF7970A EN (Chip Enable) pin28 (MCU Out set to "1"to enable TRF7970A)
PC0			YES			TIM2_CH4			I2C2_SDA		-	USART3_RX	-		OTG_HS_ULPI_D4				-	EVENTOUT		TRF7970A IO0 pin17 (MCU Out set to "0" for SPI with SS)
PC0		NO	YES	ADC123_IN3	-	TIM2_CH4	TIM5_CH4	TIM9_CH2	-		-	USART2_RX	-	-	OTG_HS_ULPI_D0	ETH_MII_COL	-		-	EVENTOUT		TRF7970A IO1 pin18 (MCU Out set to "1" for SPI with SS)
PC5	2	NO	YES	ADC123_IN2		TIM2_CH3	TIM5_CH3	TIM9_CH1			-	USART2_TX		-		ETH_MDIO				EVENTOUT		(MCU Out set to "1" for SPI with SS)
PC5								l							1							TRF7970A IO2 pin19 (Special Direct Mode TX Enable) (MCU Out set to "1" for SPI with SS)
1	-	NO	YES	ADC123_IN10		-		-	-					-	OTG_HS_ULPI_STP	-				EVENTOUT		TRF7970A IO3 pin20
1								l							1	ETH MILDYC:						(Special Direct Mode TX_Data) (not used for SPI mode) (MCU Out set to 0 default / NA in SPI with SS)
PC1	5	NO	YES	ADC12_IN15			-	-	-		-		-	-	-	ETH_MII_RXD1 ETH_RMII_RXD1				EVENTOUT		
		NO	YES	ADC123_IN11												ETH_MDC				EVENTOUT		TRF7970A IO4_SS pin21 (MCU SPI2 CSTMaster)
1	$\neg \neg$																		\neg			TRF7970A IO5 pin22 (not used for SPI mode / Data clock OUT) (MCU Out set to 0 default)
PC4	4	NO	YES	ADC12_IN14				-	-		-			-		ETH_MII_RXD0 ETH_RMII_RXD0				EVENTOUT		(MCU Out set to 0 default)
PC2	2	NO	YES	ADC123_IN12						SPI2_MISO	I2S2ext_SD		-		OTG_HS_ULPI_DIR	ETH_MII_TXD2			.	EVENTOUT		TRF7970A IO6_MISO SPI pin23 (MCU SPI2 MISO Master)
PC3		NO	YES	ADC123 IN13						SPI2_MOSI I2S2_SD					OTG_HS_ULPI_NXT	ETH_MILTX_CLK				EVENTOUT		TRF7970A IO7_MOSI SPI pin24 (MCU SPI2 MOSI Master)
				. AUGINO BINIO						SPI2_SCK I2S2_CK								-				TRF7970A DATA_CLK pin26 (MCU SPI2 SCK Master)
PB10	3	NO	YES	EVENTOUT /	-	TIM2_CH3	-	-	I2C2_SCL	12S2_CK	-	USART3_TX	-	-	OTG_HS_ULPI_D3	ETH_MII_RX_ER	-	-	-	EVENTOUT		(MCO OF IZ SCR Master)
PC13	0	NO	YES	EVENTOUT / RTC_AF1			-	-		-	-		-	-						-		
PC14-OSC32_IN (PC14)	0	NO	YES	EVENTOUT / OSC32_IN(4)																	Optional RTC 32,768KHz	
PC15- OSC32_OUT (PC15)	3 0 3 C32_IN 4)			EVENTOUT																	Ontinnal	
(PC15)	3 0 3 C32_IN 4)		YES	EVENTOUT / OSC32_OUT(4)																	RTC 32,768KHz	
PH0-OSC_IN (PH0)	3 3 C32_IN 4) 5- OUT	NO	YES	EVENTOUT / OSC_IN(4)																	Quartz 8MHz	<u> </u>
PH1-OSC_OUT (PH1)	3 3 C32_IN 4) 5- OUT		YES	EVENTOUT / OSC OUT(4)																	Quartz 8MHz	·
(PH1) NRST	3 0 3 C32_IN 4) 5- OUT 5) GC_IN 0)	NO.																			Reset Button / SWD_DEBUG	
	3 0 3 3 C32_IN 4) 5-0UT 5) 6C_IN 0) -	NO	-																		ULED (User LED 0)	
211	3 0 3 3 C32_IN 4) 5-0UT 5) 6C_IN 0) -	NO ON		ADC12_IN4 / DAC1_OUT						SPI1 NSS	SPI3_NSS I2S3_WS	HOADTO CO					070 110 057	2011 11010		D. ELEVEROL	(User LED 0) Can be disabled by removing Jumper JMP1 ULED	
PA4 PB2-BOOT1	3 3 3 3 3 3 3 3 3 4 4 1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	ON		EWC1_OUT		-	-			SPII_NSS	1253_WS	USART2_CK	-	-		-	OTG_HS_SOF	DCMI_HSYNC		EVENTOUT	omr i JLEU	
(PB2)	3 0 3 3 C32 IN 4)	011	NO (3.3V)		-		TIM3 CH*	TIME CH	-	psp mck	-	-	LISARTE TV	-	-	-	SDIO DE	DCMI DO	÷	EVENTOUT		
PC6 PC7	3 0 3 3 C32_IN 4)	01 01 01 01 01	NO (3.3V) YES				TIM3_CH2	TIM8_CH1 TIM8_CH2		12S2_MCK	I2S3_MCK	USART1_CK	USART6_TX USART6_RX		· · · ·		SDIO_D6 SDIO_D7	DCMI_D0 DCMI_D1		EVENTOUT EVENTOUT		
PA8	3 0 3 3 C32_IN 4)	01 01 01 01 01 01 01	NO (3.3V) YES YES YES YES		140.7	704 700		1 .	12C3_SCL		-									EVENTOUT		
PA9	3 0 3 C32_IN 4) - N 5 - OUT 5) CC_IN 0) - OUT 5) COUT 17 TT 4 0 0 T1 2) 8 8 7 7 7 3 3	01 01 01 01 01 01 01	NO (3.3V) YES YES YES YES YES	OTG_FS_VBUS	MCO1	TIM1_CH1 TIM1_CH2	-		I2C3_SMBA			USART1_TX	- :	-	OTG_FS_SOF	- :		DCMI_D0	-	EVENTOUT		

Pin 3.3V Only !! Not 5V tolerant Default Function HydraBus HydraBus Conf HydraNFC TRF7970A