

UC5550



Overview

Our UC5550 module is a step up from the UC2550 in terms of processor speed, internal flash, external RAM and available peripherals. Unlike the UC2550, the UC5550 has USB host, parallel LCD, DCMI interfaces and Ethernet PHY support.

We currently stock the UC5550 both with and without Wi-Fi depending on the model. The current models are shipping with 32 MByte of external RAM and 4 MByte of external flash. We also offer customized, non-stock versions of our SoMs. See [Options](#) below for more information.

Getting Started

The UCM [development options](#) can greatly simplify the process of building a product or prototype using the UC5550. Options include a development board and displays which can get you programming in minutes. Please refer to the [Development Options](#) page for more information.

Using TinyCLR OS

TinyCLR provides a way to program the UC5550 in C# or Visual Basic from the Microsoft Visual Studio integrated development environment. To get started you must first install the bootloader and firmware on the UC5550 (instructions below) and then go to the TinyCLR [Getting Started](#) page for instructions on setting up the host computer and writing and deploying programs.

Loading Bootloader Version 2

Download the UC5550 bootloader [here](#).

Go to the [Uploading DFU Files](#) section of the [STM32 Bootloader](#) page for instructions on installing the bootloader.

Loading the Firmware

TIP

First make sure you have bootloader v2 loaded. This needs to be done only once.

To activate bootloader v2, hold the LDR0 signal low (press BOOT B on the UCM Dev and Breakout boards) and reset the board. You may have to wait a couple of seconds before releasing LDR0.

Download the [UC5550 firmware](#) and follow [Loading the Firmware](#) steps.

Setup the Host Computer and Start Coding

Now that you have installed the bootloader and firmware on the UC5550, you can setup your host computer and start programming. Go to the TinyCLR [Getting Started](#) page for instructions.

Using Native Code with TinyCLR

TinyCLR OS also lets you use native code that works alongside your managed application. Native code can be used to provide improved performance or access to advanced features not exposed through TinyCLR. For more information check out [Native Code on TinyCLR](#).

TinyCLR cannot relocate native code, so you will have to specify its location in the scatterfile. For the UC5550, the interop region starts at address 0xC1F00000, and its length is 0xFFFF8.

Updating the Wi-Fi Module Firmware

To update the firmware on the UC5550 Wi-Fi module, follow the instructions on [this page](#).

Schematic

The schematic for the UC5550 can be found [here](#).

Options

Model Number	Wi-Fi	Ethernet PHY	External SDRAM	External QSPI Flash
UC5550-67HFN	no	no	32 MByte	4 MByte
UC5550-67HFW	yes	no	32 MByte	4 MByte

Customization

We also offer customized, non-stock versions of our SoMs. Many options are available, such as various sizes of external QSPI flash. Please [contact us](#) for details. We will always do our best to provide you with a module to fit your exact needs.

Specifications

Spec	UC5550
Processor	ST STM32F767 32-bit ARM Cortex-M7
Speed	216 MHz
Internal RAM	512 KByte (SRAM)
Internal Flash	2 MByte
External RAM	32 MByte (SDRAM)
External Flash	4 MByte (QSPI)
Dimensions	67.7 x 31.7 x 4.5 mm

Note: Not all memory will be available for your application.

Peripherals

Peripheral	UCM Standard	Overall*
UART	4	5 (including HS)
UART HS	1	2
I2C	1	2
SPI	2	3
CAN	2	2
SDIO	1	1

Peripheral	UCM Standard	Overall*
ADC	8	9
PWM	8	20
GPIO	12	103
IRQ	4	103
USB Client	Supported	Supported
USB Host	Supported	Supported
LCD	Supported (16bpp & 24bpp)	Supported (16bpp & 24bpp)
Ethernet PHY	Supported	Supported
Wi-Fi	Supported	Supported
DCMI	Supported	Supported
VBAT	Supported	Supported
JTAG	SWD	SWD

**The "Overall" column includes peripherals that fall outside of the UCM standard definition. Using these peripherals may reduce code portability with our other UCM models. Also, as many of these non-standard peripherals share I/O pins, not all of them will be available to your application.*

Pin Assignments

SO-DIMM Pin	Universal Compute Standard	Function Name
1	AGND	AGND
2	Ethernet TX-	ETH PHY TX-
3	Module Specific 1	(Wi-Fi PIN14) Wi-Fi Power LED
4	Ethernet TX+	ETH PHY TX+

SO-DIMM Pin	Universal Compute Standard	Function Name
5	Analog VREF-	Analog VREF-
6	Ethernet RX-	ETH PHY RX-
7	Reserved	
8	Ethernet RX+	ETH PHY RX+
9	Reserved	PH7, DCMI GP
10	Indicator A	ETH PHY LED SPEED
11	Indicator B	ETH PHY LED LINK
12	Reserved	
13	GND	GND
14	DCMI D0	PH9, DCMI D0
15	DCMI D1	PH10, DCMI D1
16	DCMI D2	PG10, DCMI D2
17	DCMI D3	PH12, DCMI D3
18	DCMI D4	PE4, DCMI D4
19	DCMI D5	PI4, DCMI D5
20	Analog 3.3V	Analog 3.3V
21	DCMI D6	PE5, DCMI D6
22	DCMI D7	PE6, DCMI D7
23	DCMI VSYNC	PG9, DCMI VSYNC
24	DCMI HSYNC	PH8, DCMI HSYNC

SO-DIMM Pin	Universal Compute Standard	Function Name
25	DCMI PIXCLK	PA6, DCMI PIXCLK
26	DCMI XCLK	PA8, DCMI XCLK, MCO1
27	GND	GND
28	PWM E	PI6, TIM8 CH2
29	PWM F	PI7, TIM8 CH3
30	PWM G	PI2, TIM8 CH4
31	PWM H	PA3, TIM9 CH2, ADC3
32	Analog VREF+	Analog VREF+
33	Reserved	
34	5V	
35	Module Specific 4	(Wi-Fi PIN13)
36	Module Specific 5	(Wi-Fi PIN16)
37	Module Specific 6	(Wi-Fi PIN22)
38	Module Specific 7	
39	Module Specific 8	
40	GND	GND
41	GND	GND
42	LCD 24bpp R0	PI15, LCD R0
43	LCD 24bpp R1	PJ0, LCD R1
44	LCD 24bpp R2	PJ1, LCD R2

SO-DIMM Pin	Universal Compute Standard	Function Name
45	LCD 24bpp G0	PJ7, LCD G0
46	3.3V	3.3V
47	LCD 24bpp G1	PJ8, LCD G1
48	LCD 24bpp B0	PJ12, LCD B0
49	LCD 24bpp B1	PJ13, LCD B1
50	LCD 24bpp B2	PJ14, LCD B2
51	GND	GND
52	Module Specific 9	
53	Reserved	
54	Reserved	
55	Reserved	
56	5V	
57	IRQ A	PI8
58	IRQ B	PI11
59	IRQ C	PH14
60	3.3V	3.3V
61	IRQ D	PH15
62	GPIO A	PD7
63	GPIO B	PE3
64	GPIO C	PG3

SO-DIMM Pin	Universal Compute Standard	Function Name
65	GND	GND
66	GPIO D	PG6
67	GPIO E	PG7
68	GPIO F	PH4
69	GPIO G	PI0
70	5V	
71	Reserved	
72	3.3V	3.3V
73	I2C B SDA	
74	I2C B SCL	
75	UART C TX	PF7, UART7 TX
76	UART C RX	PF6, UART7 RX
77	UART D TX	(Wi-Fi PIN9) PB10, USART3 TX, TIM2 CH3, I2C2 SCL
78	UART D RX	(Wi-Fi PIN7) PB11, USART3 RX, TIM2 CH4, I2C2 SDA
79	GND	GND
80	Reserved	
81	Reserved	
82	Reserved	
83	Reserved	

SO-DIMM Pin	Universal Compute Standard	Function Name
84	Reserved	
85	Reserved	
86	5V	
87	USB Device ID	
88	3.3V	3.3V
89	UART B TX	PC6, USART6 TX, TIM3 CH1
90	UART B RX	PC7, USART6 RX, TIM3 CH2
91	ADC A	PA0, ADC0, TIM5 CH1
92	GPIO H	PA1, ETH RMII REF CLK
93	SPI B MISO	(Wi-Fi PIN6) PF8, SPI5 MISO, TIM13 CH1, UART7 RTS
94	SPI B MOSI	(Wi-Fi PIN8) PF9, SPI5 MOSI, TIM14 CH1, UART7 CTS
95	GND	GND
96	SPI B SCK	(Wi-Fi PIN10) PH6, SPI5 SCK, TIM12 CH1
97	ADC B	PA4, ADC4, DAC1
98	CAN A TD	PH13, CAN1 TX
99	CAN A RD	PI9, CAN1 RX
100	CAN B TD	PB13, CAN2 TX
101	CAN B RD	PB12, CAN2 RX
102	UART HS A TX	PD5, USART2 TX

SO-DIMM Pin	Universal Compute Standard	Function Name
103	UART HS A RX	PD6, USART2 RX
104	ADC C	PA5, ADC5, DAC2
105	PWM A	PA15, TIM2 CH1
106	3.3V	3.3V
107	BOOT A	BOOT
108	Module Specific 2	(Wi-Fi PIN2)
109	Module Specific 3	(Wi-Fi PIN4)
110	ADC D	PB0, ADC8, TIM3 CH3
111	BOOT C	PI1, LDR1
112	PWM B	PB7, TIM4 CH2
113	GND	GND
114	ADC E	PB1, ADC9, TIM3 CH4
115	I2C A SDA	PB9, I2C1 SDA, TIM4 CH4
116	I2C A SCL	PB8, I2C1 SCL, TIM4 CH3
117	UART A RX	PA10, USART1 RX
118	UART A TX	PA9, USART1 TX
119	GPIO I	PA2, ETH MDIO
120	UART HS A RTS	PD4, USART2 RTS
121	UART HS A CTS	PD3, USART2 CTS
122	GPIO J	PA7, ETH RMII CRS DV

SO-DIMM Pin	Universal Compute Standard	Function Name
123	SD Card D0	PC8, SD D0
124	3.3V	3.3V
125	SD Card CMD	PD2, SD CMD
126	SD Card CLK	PC12, SD CLK, SPI3 MOSI
127	SD Card D1	PC9, SD D1
128	SD Card D2	PC10, SD D2, SPI3 SCK
129	SD Card D3	PC11, SD D3, SPI3 MISO
130	PWM C	PH11, TIM5 CH2
131	GND	GND
132	GPIO K	PC4, ETH RMII RXD0
133	PWM D	PI5, TIM8 CH1
134	BOOT B	PB2, LDR0
135	BOOT D	PI3, MODE
136	GPIO L	PC5, ETH RMII RXD1
137	Module Specific 10	(ETH PHY OSCILLATOR PIN1) OE OFF#
138	UART HS B RTS	
139	UART HS B CTS	
140	UART HS B TX	
141	UART HS B RX	

SO-DIMM Pin	Universal Compute Standard	Function Name
142	3.3V	3.3V
143	LCD VSYNC	PI13, LCD VSYNC
144	LCD HSYNC	PI12, LCD HSYNC
145	LCD CLK	PI14, LCD CLK
146	LCD DE	PK7, LCD DE
147	Module Specific 11	
148	SD Card CD	PC13
149	Module Specific 12	
150	Reserved	
151	GND	GND
152	LCD B3	PJ15, LCD B3
153	LCD B4	PK3, LCD B4
154	LCD B5	PK4, LCD B5
155	LCD B6	PK5, LCD B6
156	LCD B7	PK6, LCD B7
157	ADC F	PC0, ADC10
158	ADC G	PC2, ADC12
159	ADC H	PC3, ADC13
160	3.3V	3.3V
161	LCD G2	PJ9, LCD G2

SO-DIMM Pin	Universal Compute Standard	Function Name
162	LCD G3	PJ10, LCD G3
163	LCD G4	PJ11, LCD G4
164	LCD G5	PK0, LCD G5
165	LCD G6	PK1, LCD G6
166	Module Specific 13	
167	Indicator C	(Wi-Fi PIN15) Wi-Fi Link Up LED
168	LCD R7	PJ6, LCD R7
169	GND	GND
170	LCD G7	PK2, LCD G7
171	LCD R3	PJ2, LCD R3
172	LCD R4	PJ3, LCD R4
173	LCD R5	PJ4, LCD R5
174	LCD R6	PJ5, LCD R6
175	SPI A SCK	PB3, SPI1 SCK
176	SPI A MISO	PB4, SPI1 MISO
177	Module Specific 14	
178	SPI A MOSI	PB5, SPI1 MOSI
179	Module Specific 15	
180	3.3V	3.3V
181	Module Specific 16	

SO-DIMM Pin	Universal Compute Standard	Function Name
182	Module Specific 17	
183	VBAT	VBAT
184	Module Specific 18	
185	GND	GND
186	GND	GND
187	RESET	RESET
188	USB Host D+	PB15, USBH D+
189	JTAG RTCK	
190	USB Host D-	PB14, USBH D-
191	JTAG TDO	
192	3.3V	3.3V
193	JTAG NTRST	
194	USB Device D+	PA12, USB D+
195	JTAG TDI	
196	USB Device D-	PA11, USB D-
197	JTAG TCK (SWCLK)	PA14, JTCK, SWCLK
198	GND	GND
199	JTAG TMS (SWDIO)	PA13, JTMS, SWDIO
200	Indicator D	(Wi-Fi PIN5) Wi-Fi Running (Blink) LED