

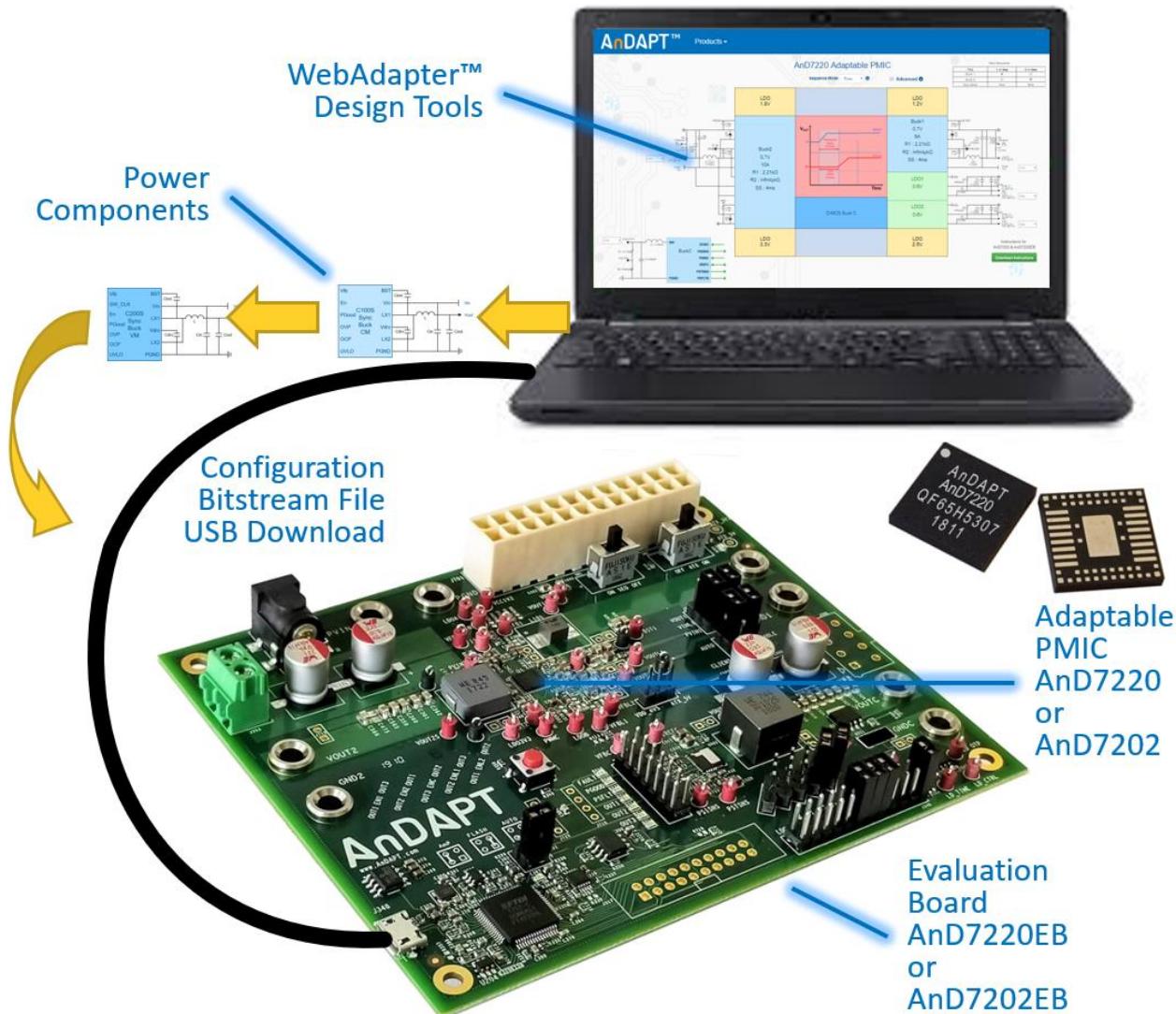
**AnD7220EB, AnD7202EB****Features**

- Demonstrates AnD7220 or AnD7202 Adaptable PMIC:
  - One DrMOS Buck Regulator
  - One 10A Synchronous Buck Regulator
  - One 6A Synchronous Buck Regulator
  - Two LDOs (AnD7220) or two Load Switches (AnD7202)
  - Four 0.2A auxiliary LDOs: 1.2V, 1.8V, 2.5V, 3.3V
  - Sequencing
- WebAdapter™ or WebAmP™ Tool Downloads Configuration Files:
  - .HAX file to configure the device directly
  - .HEX file (Intel HEX) to program on-board flash

**Description**

The AnD7220EB and AnD7202EB are ready to use Evaluation Boards to evaluate the Dual-Buck AnD7220 and AnD7202 PMICs. Simply apply  $P_{IN}$ , then measure default settings of 0.7V on the  $V_{OUT}$  terminals. To change  $V_{OUT}$ , adjust the resistor divider ratio according to:  
 $R_2 = V_{fb} * R_1 / (V_{OUT} - V_{fb}) \text{ k}\Omega$ , or use the WebAdapter tool and select your desired  $V_{OUT}$ . The tool reports will provide the resistor required location and value. To access the WebAdapter tool, please use the following link:  
<https://webadaptor.andapt.com/apmic>

Optionally, the Bucks may be modified as needed by the WebAdapter or WebAmP tool and downloaded over the USB cable. The .HAX file downloads to the AnD72XX Adaptable PMIC while the .HEX file downloads to the flash memory. Functionality may be extended using On-Demand WebAmP tools. For additional information, please check the following link: <https://www.andapt.com/docs>

**Application of Evaluation Board**

## Getting Started: Power Up

Step 1. Set jumpers to the default FLASH-to-PMIC and PMIC-is-HOST configurations highlighted in green on the Jumper Selection Table. Set switch SW1 UP (off) as shown below.

Step 2. Connect 12V power supply to PVIN Plug.

Step 3. Turn ON board by switching SW1 DOWN (on).

Step 4. Measure buck output voltages on the VOUT terminals. (7V default).

To change parameters:

Step 5. Open [WebAdapter](#) tool from AnDAPT web site

Step 6 Modify buck output voltages on VOUT1 and VOUT4 using WebAdapter Download Instructions (see WebAdapter™ View, page3)

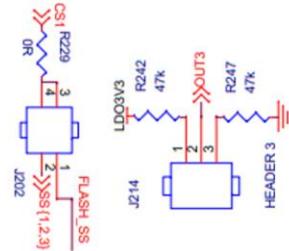
Step 7 Modify buck sequences using using WebAdapter Download Instructions (see WebAdapter™ View, page3)

## Jumper Selection Table for J202 and J214

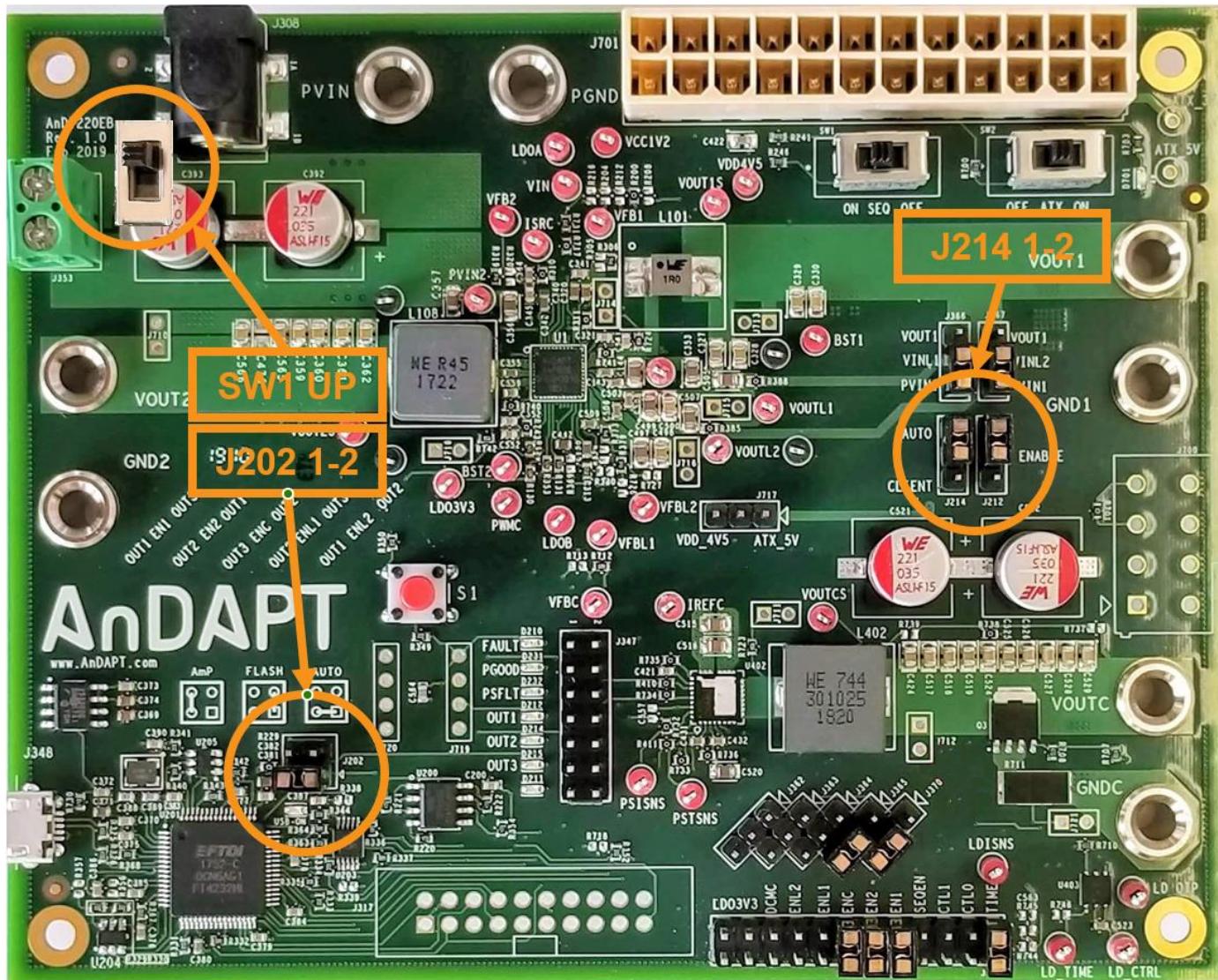
Function	Header	Jumper	Operation
Chip Select	J202	2-4	USB to PMIC
		1-3	USB to FLASH
	J214	1-2	FLASH to PMIC*
Mode	J214	1-2	PMIC is HOST*
		2-3	PMIC is CLIENT

\*for FLASH to AmP, use AmP is HOST

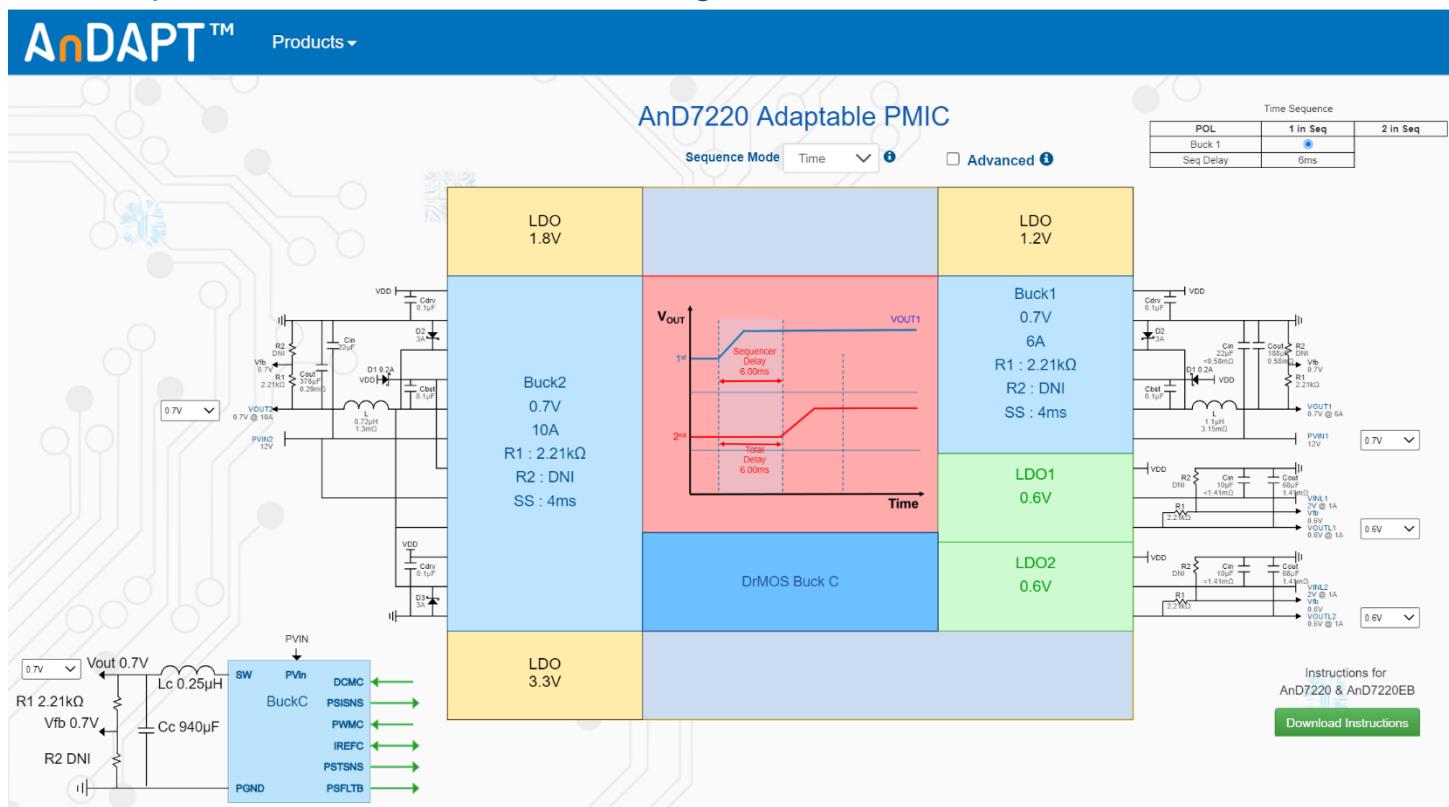
## Schematic view of Jumper Pins



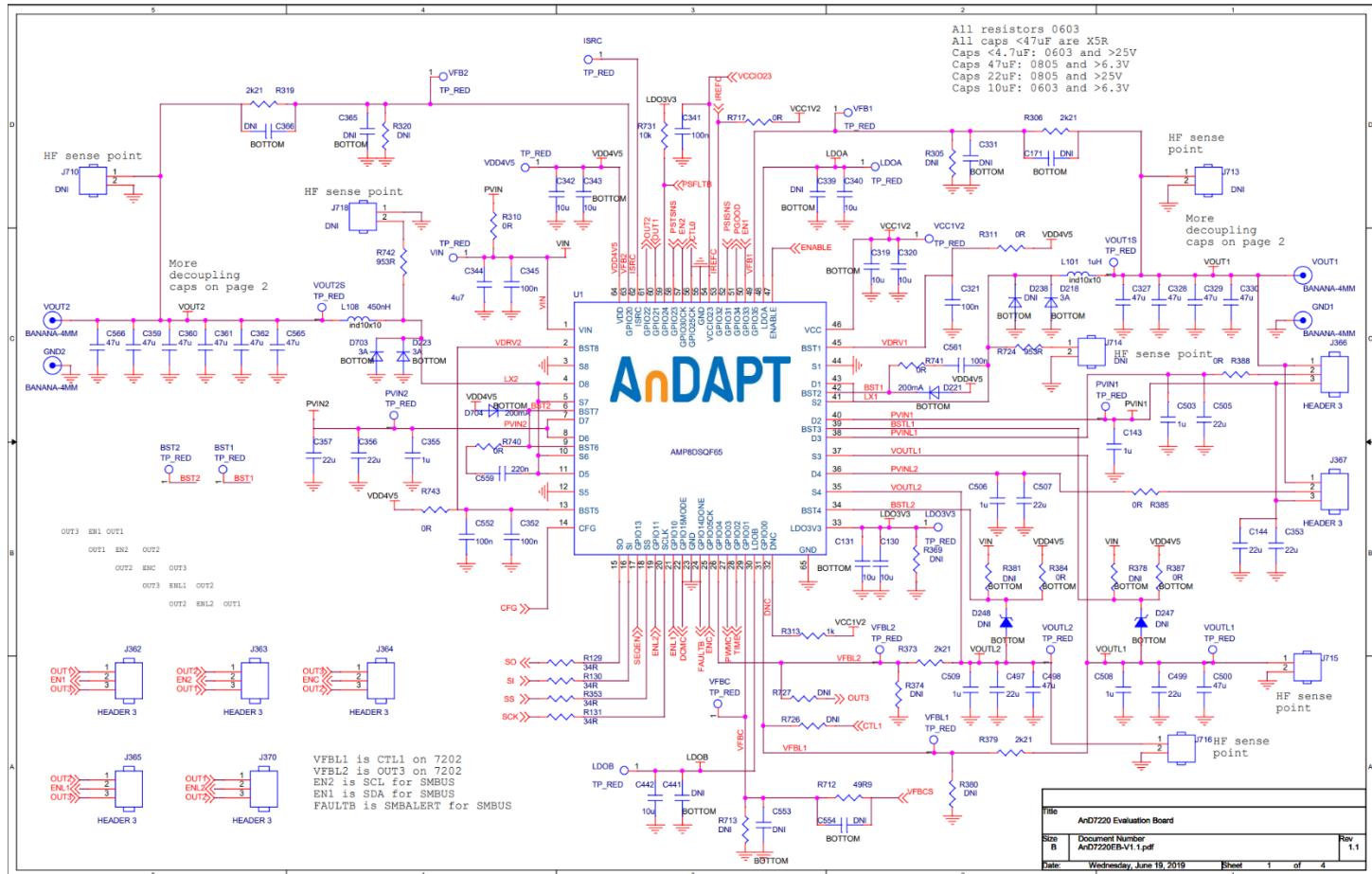
## PMIC Power Up Jumper and Switch Settings



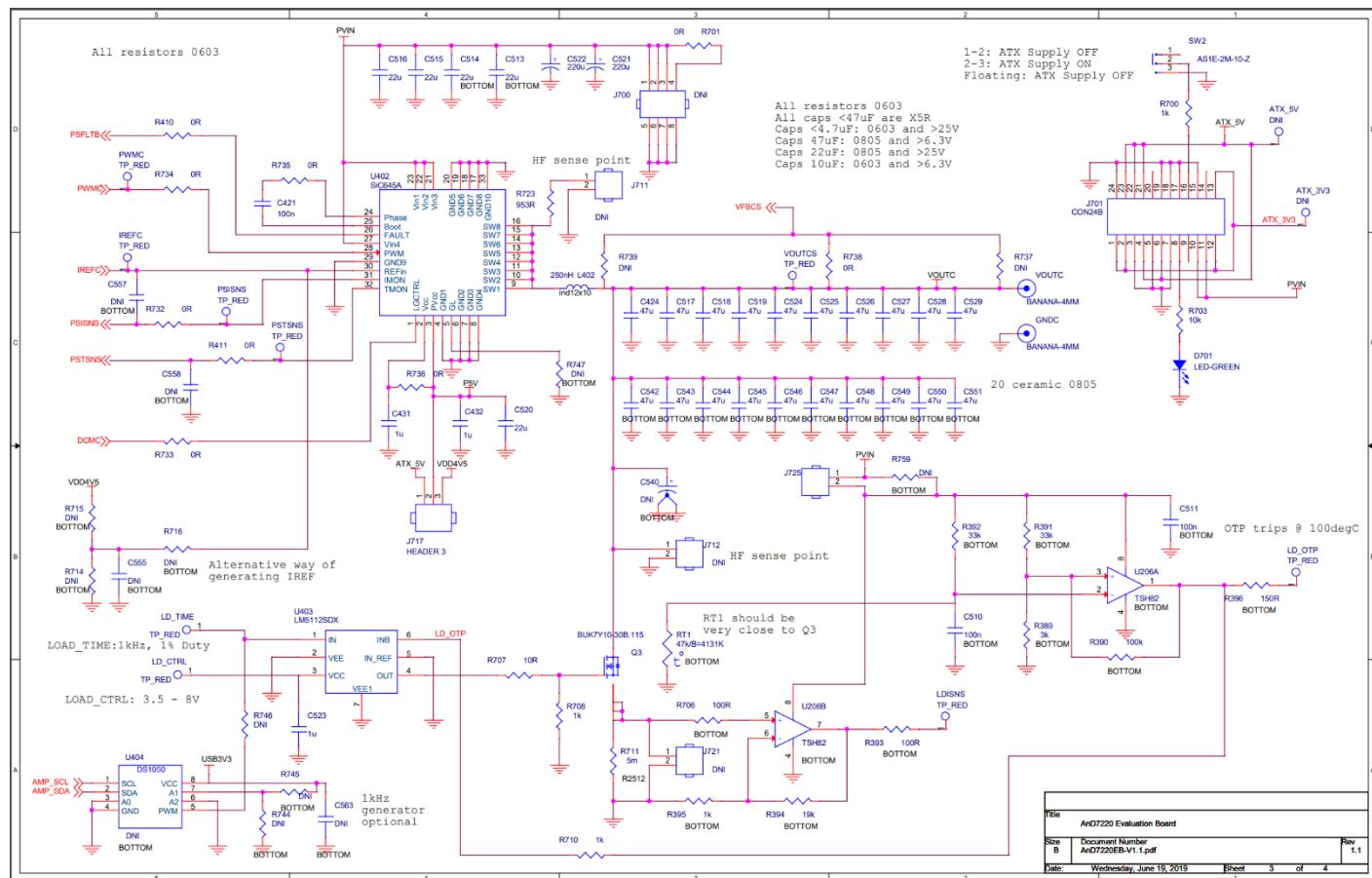
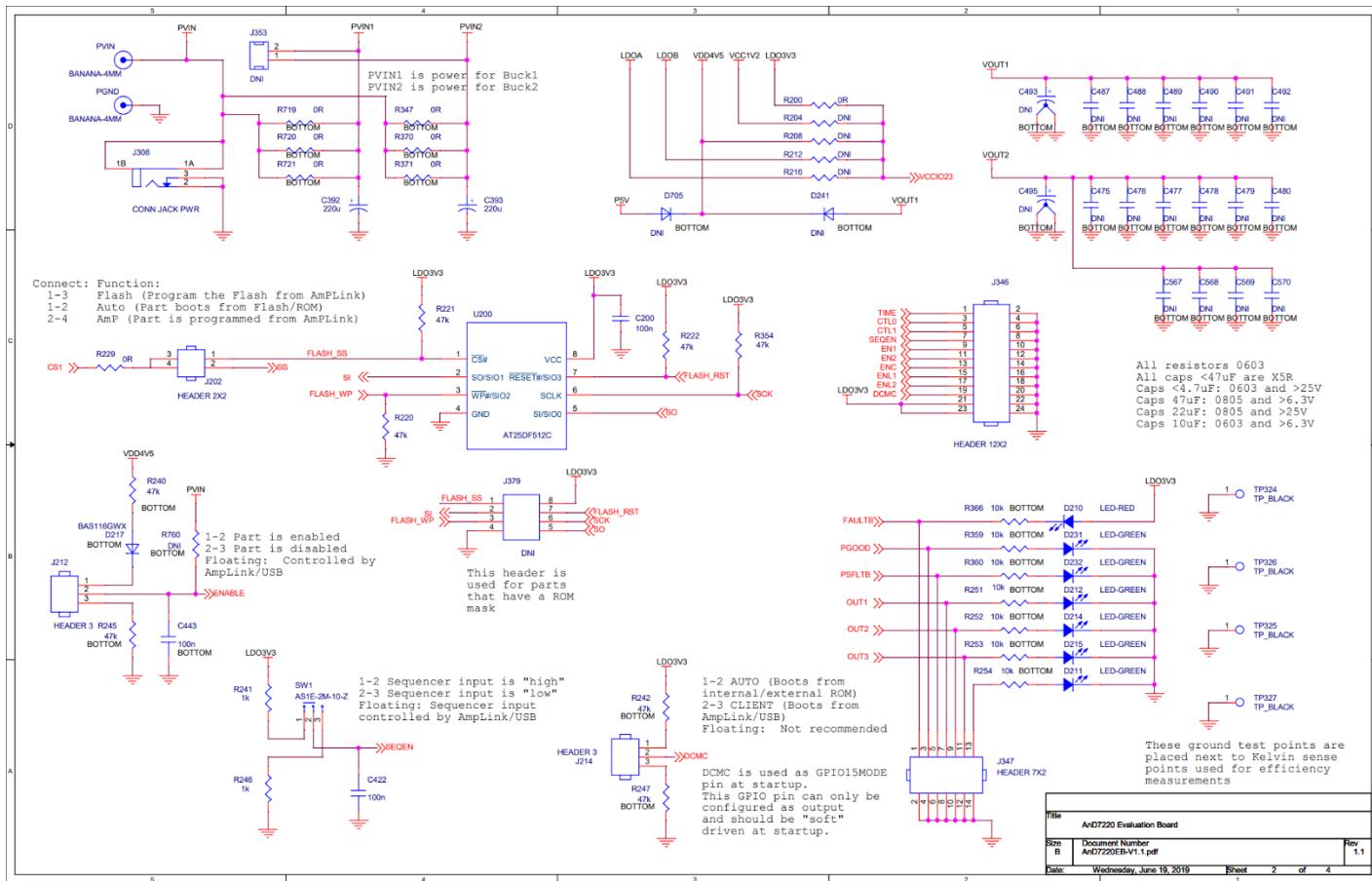
WebAdapter™ View, AnD7220 Web Design



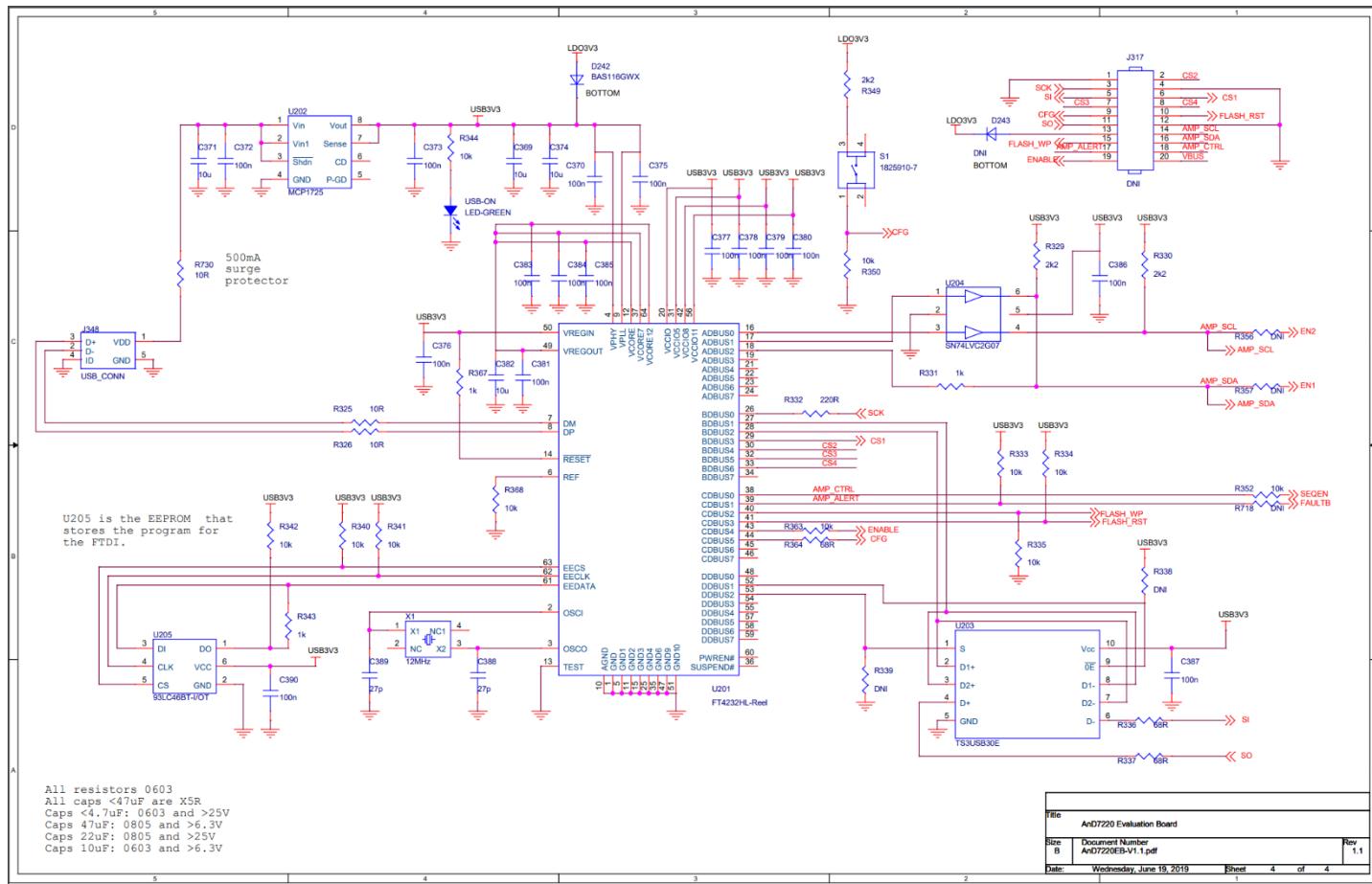
## Schematics



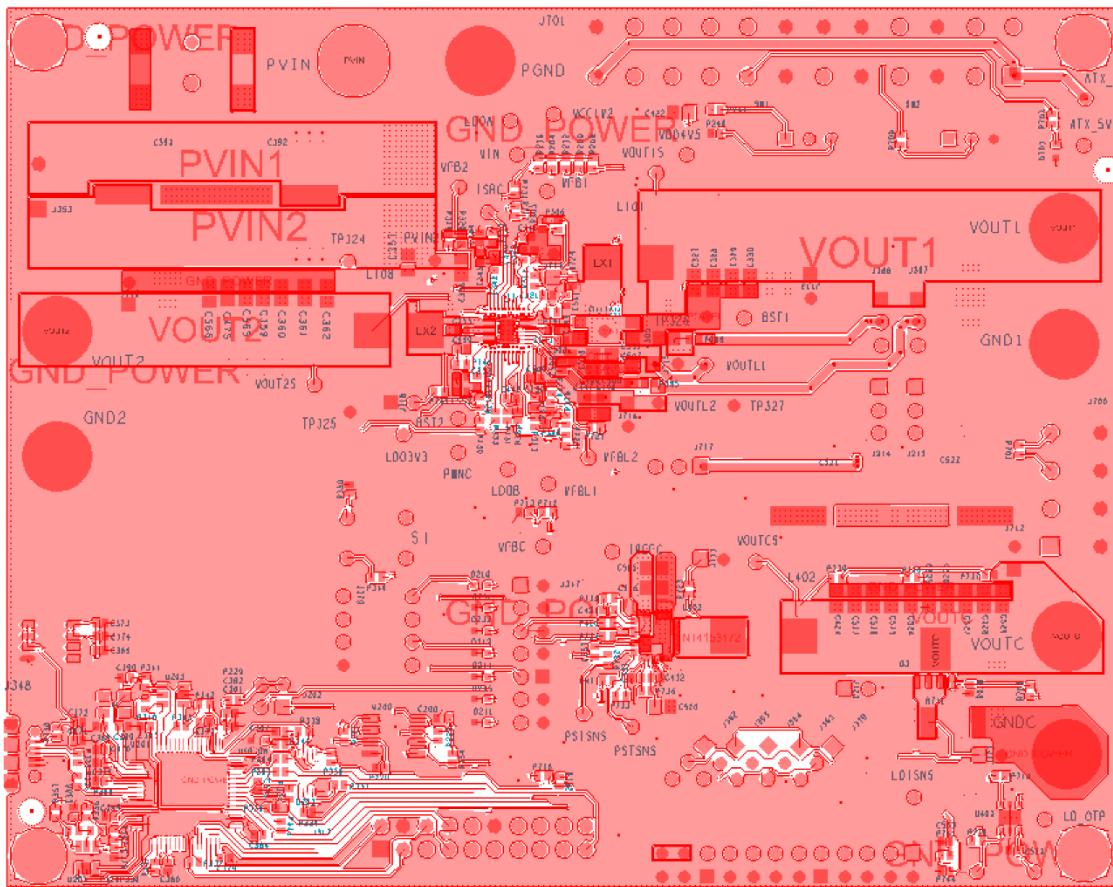
## Schematics



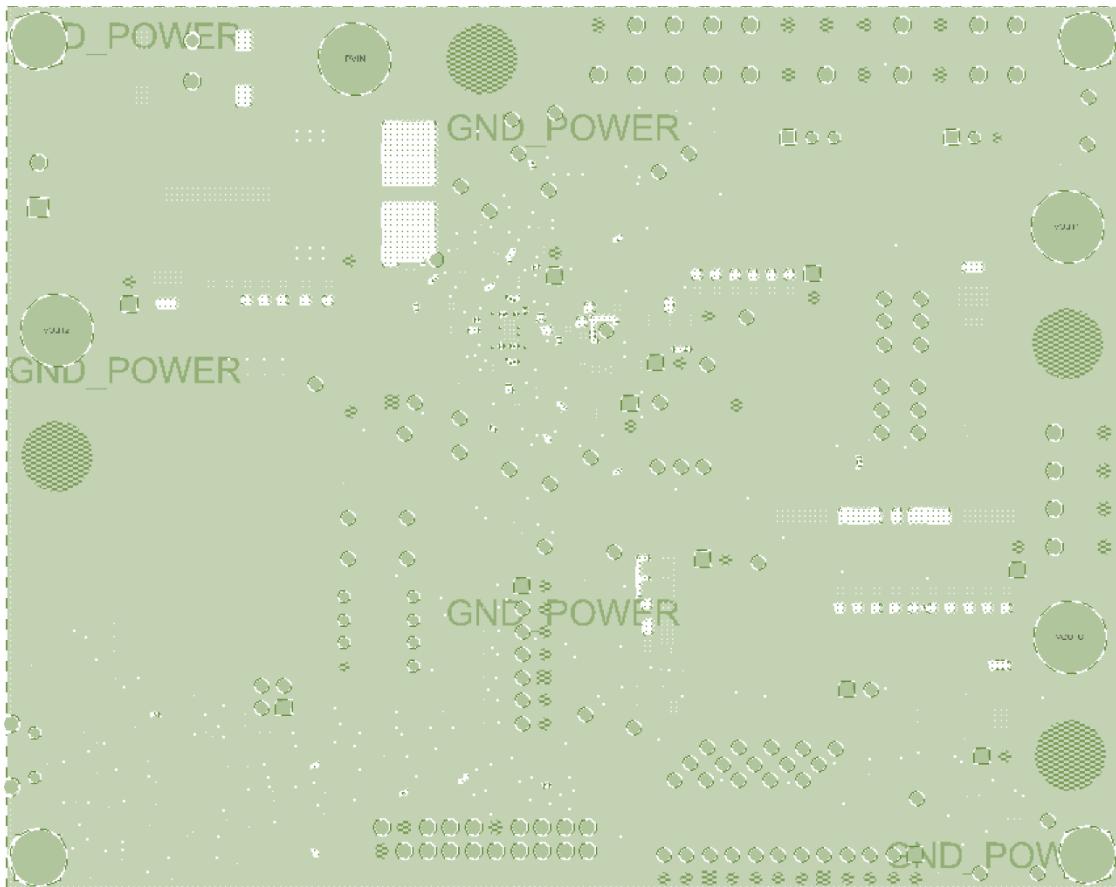
## Schematics



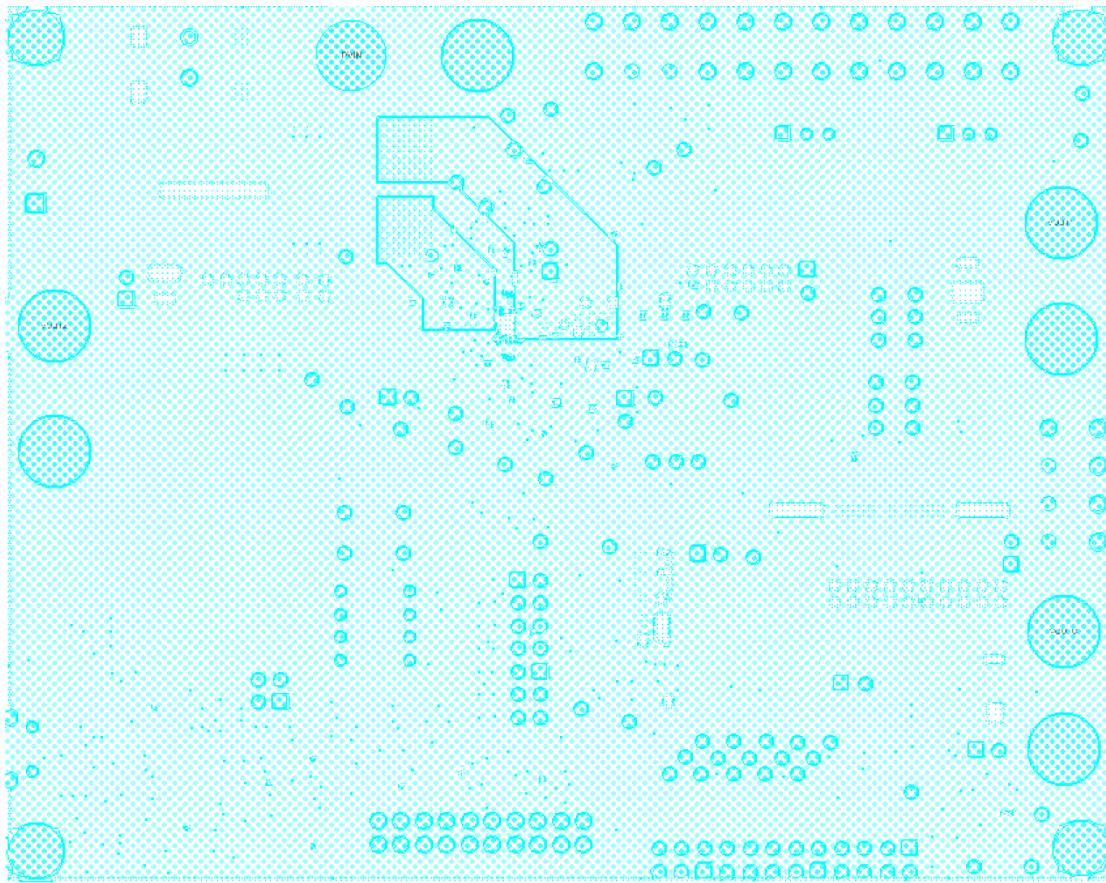
## PCB Top Layer with Silk Screen



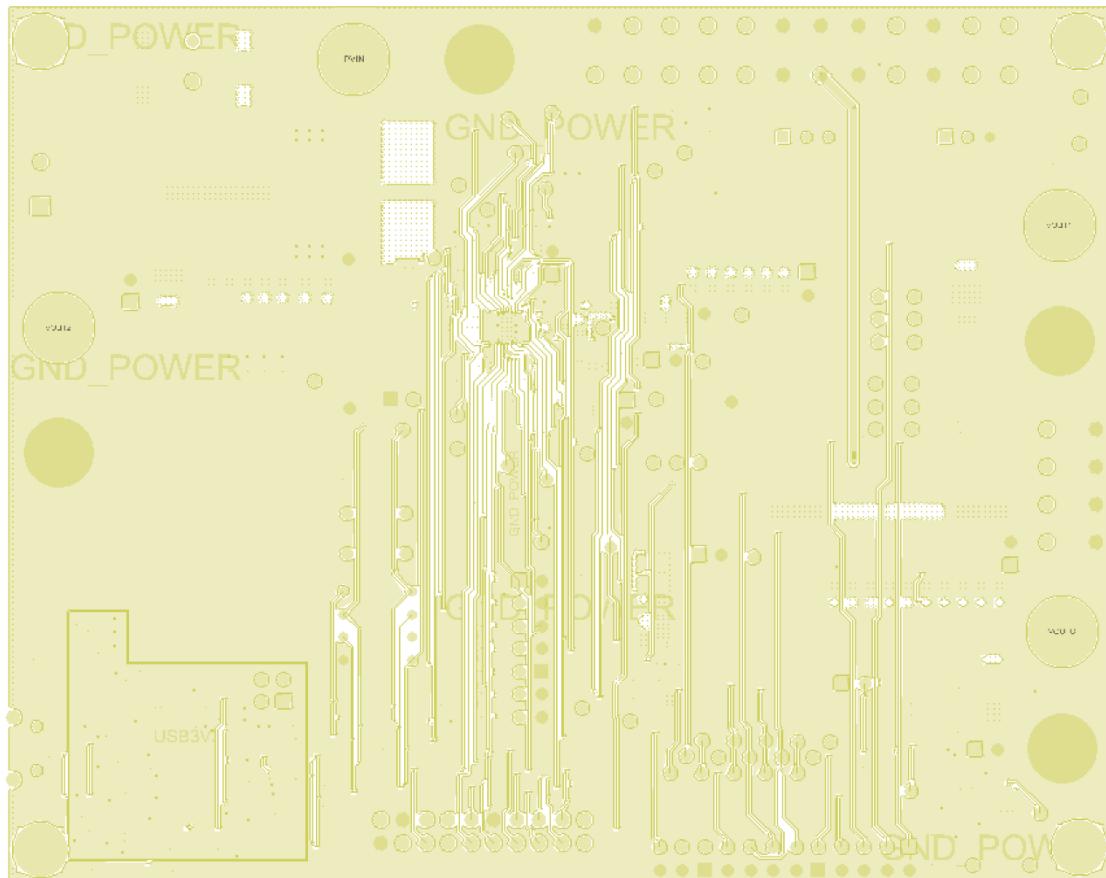
## PCB Layer 2 GND



## PCB Layer 3 PVIN

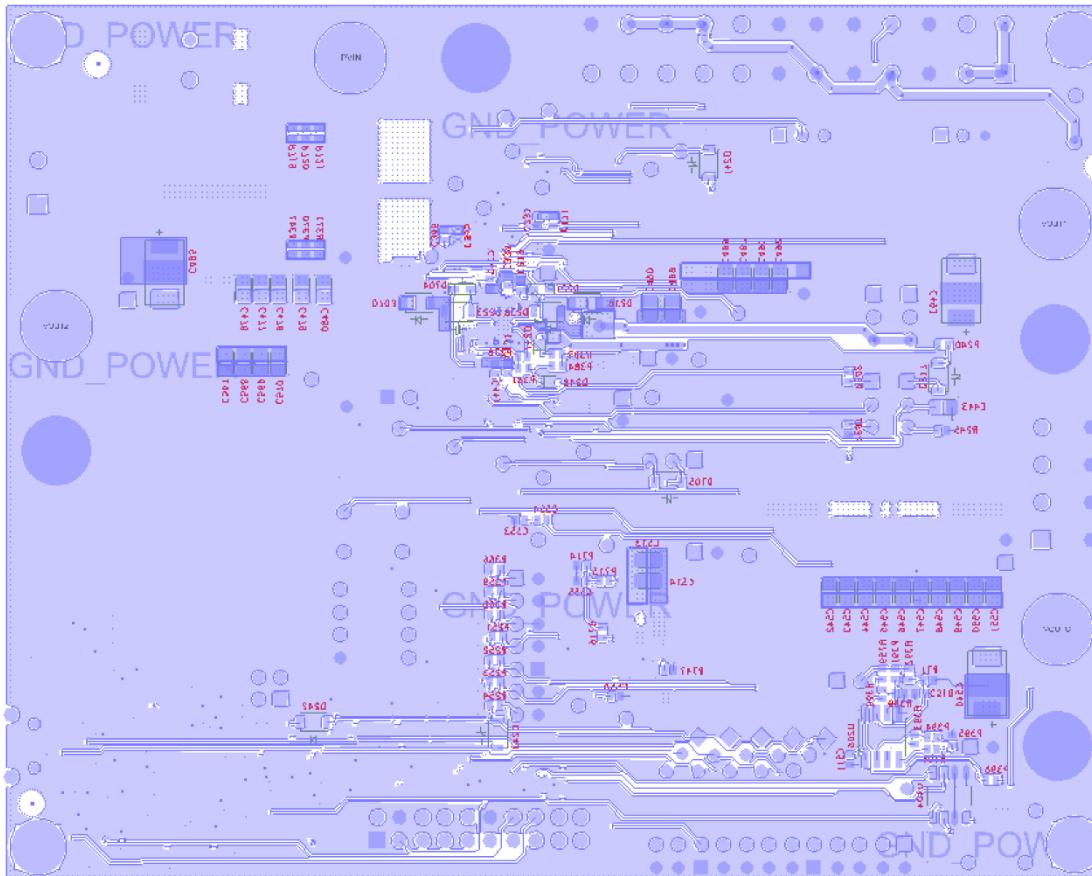


## PCB Layer 4



# PCB Layer GND2

# PCB Bottom Layer with Silk Screen



## Bill of Materials

Item	Qty	Reference	Value	Manufacturer
1	82	ATX_5V,ATX_3V3,C171,R204, R208,R212,R216,D238,D241, D243,D247,D248,R305,J317, R320,C331,R338,R339,C339, C365,C366,R369, R374,R378,R380,R381, <b>R384, R387</b> C441, <b>C443</b> , C477,C478,C479, C480,C487,C488,C489,C490, C491,C492,C493,C495,C540, C553,C554,C555,C557,C558, C563,C567,C568,C569,C570, J700,D705,J710,J711,J712, R713,J713,R714,J714,R715, J715,R716,J716,R718,J718, J719,J720,J721,R726,R727, R739,R744,R745,R746, R747, R313, R334, R363, R240,R738,	DNI	
2	29	VOUTL1,VOUT1S,VFBL1,VFB1, PVIN1,BST1,VOUTL2,VOUT2S, VFBL2,VFB2,PVIN2,BST2, VCC1V2,LDO3V3,VDD4V5, VOUTCS,VIN,VFBC,PWMC, PSTSNS,PSISNS,LD_TIME, LD OTP,LD_CTRL,LDOB,LDOA, LDISNS,ISRC,IREFC	TP_RED	36-5000-ND
3	12	C130,C131,C319,C320,C340, C342,C343,C369,C371,C374, C382,C442	10u	490-7202-1-ND (0603) <a href="https://www.digikey.com/products/en?keywords=490-7202-1-ND">https://www.digikey.com/products/en?keywords=490-7202-1-ND</a>
4	9	C143,C355,C431,C432, C503,C506,C508,C509, C523	1u	490-12321-1-ND
4.1	1	C422,	CAP CER 0.1uF 50V X7R 0805	732-8080-1-ND Wurth P/N: 885012207098
5	11	C144,C353,C356,C357, C505,C507,C513,C514, C515,C516,C520	22u	490-10749-1-ND
5.1	2	<b>C497, C499</b>	<b>3KOhm resistor</b>	<b>0805 1% resistor, any supplier</b>
6	26	C200,C321,C341,C345,C352, C370,C372,C373,C375,C376, C377,C378,C379,C380,C381, C383,C384,C385,C386,C387, C390,C421,C510,C511,C552,	CAP CER 0.1uF 50V X7R 0603	732-8013-2-ND Wurth P/N: 885012206095

		C561		
7	34	C327,C328,C329,C330,C359,	CAP CER 47uF 6.3V X5R 0805	732-7617-2-ND Wurth P/N: 885012107006
		C360,C361,C362,C424,C498,		
		C500,C517,C518,C519,C524,		
		C525,C526,C527,C528,C529,		
		C542,C543,C544,C545,C546,		
		C547,C548,C549,C550,C551,		
		C565,C566, C475, C476		
8	1	C344	CAP CER 4.7UF 25V X5R 0603	490-7203-1-ND
9	2	C388,C389	27p	399-1054-6-ND
10	4	C392,C393,C521,C522	CAP 220 uF 20% 35 V	732-8513-1-ND Wurth P/N: 865080553014
11	1	C559	CAP CER 0.22uF 25V X5R 0603	732-7916-1-ND Wurth P/N: 885012106019
12	1	D210	LED-RED	732-4978-6-ND Wurth P/N: 150060RS75000
13	8	D211,D212,D214,D215,D231,  D232,D701,USB-ON	LED-GREEN	732-4971-6-ND Wurth P/N: 150060GS75000
14	2	D217,D242	DNI	
15	3	D218,D223,D703	3A	DB2W40300LDKR-ND
16	2	D221,D704	200mA	RB521S30T5GOSCT-ND
17	8	VOUT1,GND1,VOUT2,GND2,  VOUTC,PVIN,PGND,GNDC	BANANA-4MM	BKCT2224-ND
18	1	J202	HEADER 2X2	732-5294-ND Wurth P/N: 61300421121
19	10	J212,J214,J362,J363,J364,  J365,J366,J367,J370,J717	HEADER 3	732-5316-ND Wurth P/N: 61300311121
20	1	J308	CONN JACK PWR	732-5933-6-ND Wurth P/N: 694108106102
21	1	J346	HEADER 12X2	S2012EC-20-ND
22	1	J347	HEADER 7X2	S2012EC-20-ND
23	1	J348	USB_CONN	609-4618-6-ND
24	1	J353	DNI	277-1667-ND
25	1	J701	CON24B	A127799-ND
26	1	L101	FIXED IND 1.1UH 15A 3.15 MOHM	732-1157-1-ND Wurth P/N: 744314110
27	1	L108	FIXED IND 720nH 22A 1.3 MOHM SMD	732-1165-1-ND Wurth P/N: 744325072
28	1	L402	FIXED IND 250nH 38A 0.32 MOHM	732-2999-1-ND Wurth P/N: 744301025
29	1	Q3	BUK7Y10-30B.115	1727-4602-1-ND
30	1	RT1	47k/B=4131K	490-18159-1-ND
31	4	R129,R130,R131,R353	34R	0603 1% resistor, any supplier
32	27	R200,R229,R310,R311,R347, <b>R356,R357</b> ,	0R	0603 1% resistor, any supplier
		R370,R371,,R385,		
		R388,R410,R411,R701,R717,		

		R719,R720,R721,R732,R733,		
		R734,R735,R736,R740,		
		R741,R743, R737,		
33	5	R220,R221,R222,R247,R354	47k	0603 1% resistor, any supplier
34	11	R241,R246,R331,R343, R367,R395,R700,R708,R710, <b>R329,R330</b>	1k	0603 1% resistor, any supplier
35	19	R242,R251,R252,R253,R254,R333, R335,R340,R341,R342, R344,R350,R352,R359,R360, R366,R368,R703,R731	10k	0603 1% resistor, any supplier
36	4	R306,R319,R373,R379	2k21	0603 1% resistor, any supplier
37	4	R325,R326,R707,R730	10R	0603 1% resistor, any supplier
38	1	R349	2k2	0603 1% resistor, any supplier
39	3	R336,R337,R364	68R	0603 1% resistor, any supplier
39.1	1	R332	220R	<b>0603 1% resistor, any supplier</b>
40	1	R389	3k	0603 1% resistor, any supplier
41	2	R245, R390	100k	0603 1% resistor, any supplier
42	2	R391,R392	33k	0603 1% resistor, any supplier
43	2	R393,R706	100R	0603 1% resistor, any supplier
44	1	R394	19k	0603 1% resistor, any supplier
45	1	R396	150R	0603 1% resistor, any supplier
46	1	R711	5m	RHM.005AUCT-ND
47	1	R712	49R9	0603 1% resistor, any supplier
48	3	R723,R724,R742	953R	0603 1% resistor, any supplier
49	2	SW1,SW2	AS1E-2M-10-Z	563-1582-ND
50	1	S1	1825910-7	450-1804-ND
51	4	TP324,TP325,TP326,TP327	TP_BLACK	36-5001-ND
52	1	U1	AMP8DSQF65	
53	1	U200	AT25DF512C	1265-1114-6-ND
54	1	U201	FT4232HL-Reel	768-1026-1-ND
55	1	U202	MCP1725	MCP1725-3302E/SN-ND
56	1	U203	TS3USB30E	296-25495-1-ND
57	1	U204	SN74LVC2G07	296-13494-1-ND
58	1	U205	93LC46BT-I/OT	93LC46BT-I/OTCT-ND
59	1	U206	TSH82	497-6781-1-ND
60	1	U402	SiC645A	SIC645ALR-T1-GE3-ND AnDAPT supply
61	1	U403	LM5112SDX	LM5112SDX/NOPBCT-ND
62	1	U404	DNI	DS1050Z-001+ND
63	1	X1	12MHz	1253-1168-1-ND
64	1	J725	2-pin HEADER - 2POS 2.54MM	732-5315-ND Wurth P/N: 61300211121

## Additional Resources

- [AnD7220 Datasheet](#)
- [AnD7202 Datasheet](#)
- [AmP Platform Datasheet](#)
- [AmPLink Configuration and Control](#)

## Revision History

Date	Revision
07/17/2020	Schematic, PCB Layers and BoM updated to V1.1
04/01/2019	Changed MASTER, SLAVE to HOST, CLIENT
04/01/2019	Initial

**AnDAPT**  
On-Demand Power Management

<https://www.andapt.com>

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