AmP Demonstration Board

AmP8DB1

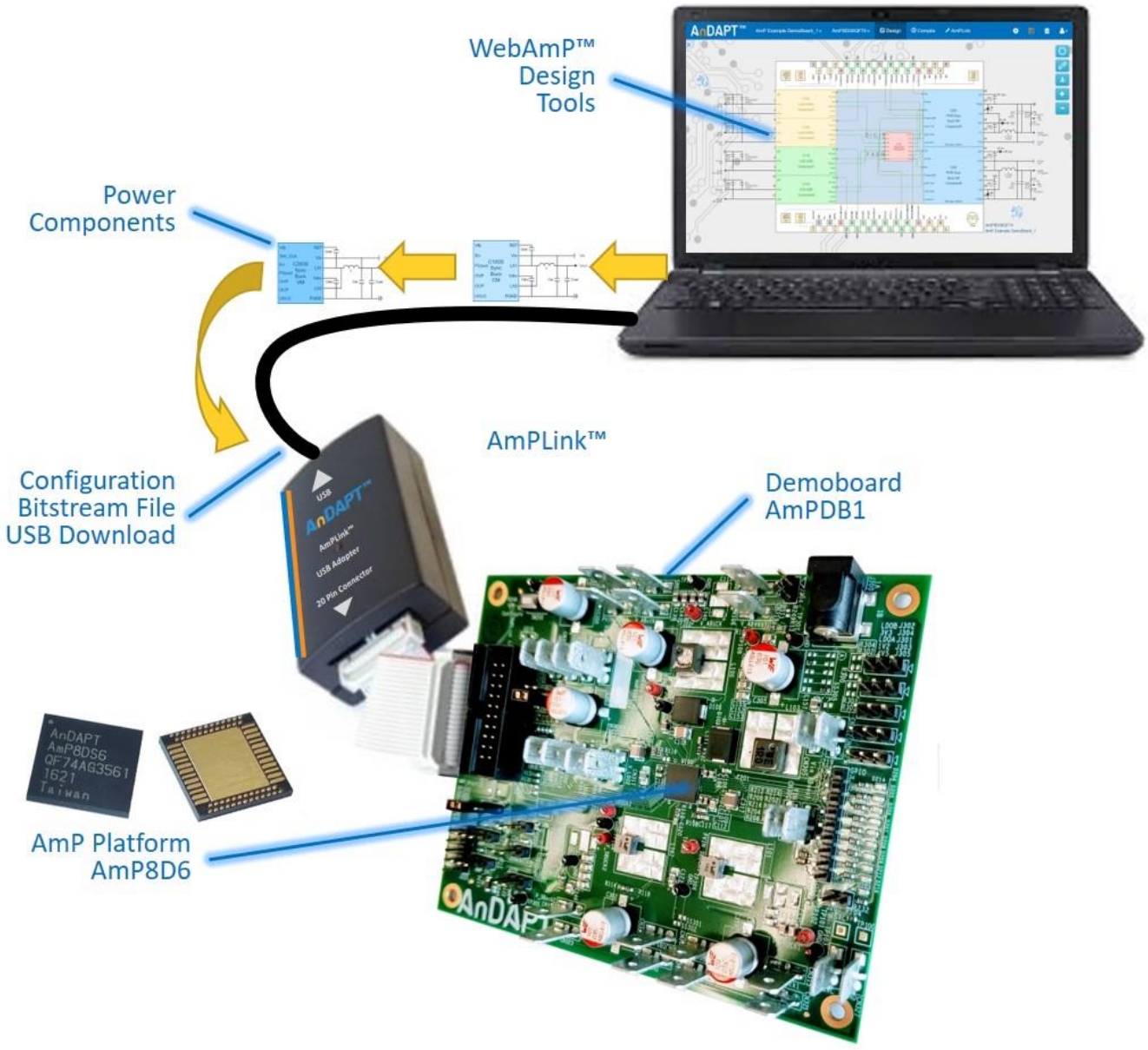
Features

- AmP8DS6QF74 Platform on board
- Demonstrates Power Components:
  - Synchronous Buck
  - Asynchronous Buck
  - Asynchronous Boost
  - LDO
  - Load Switch
  - Supervisor Functions
- Connects to AmPLink™ USB adapter
- WebAmP Tool Downloads Configuration File
  - .HEX file (Intel HEX) to program on board Flash
  - .HAX file to configure AmP device directly

Description

The AmP Demonstration Board enables evaluation of Power Components on the AmP, Adaptive Multi-Rail Power Platform. Power Components are assembled in the WebAmP design tool and compiled into a Configuration Bitstream File. The AmPLink Control program downloads the file over the AmPLink USB adapter to the AmP8DB1 Demonstration Board. The .HEX file is used to download to the Flash memory or the .HAX file is used to download directly to the AmP Platform. Synchronous Buck, Async Buck, Async Boost, LDO, Load Switch and Supervisor Power Components may then be evaluated.

Application of Demonstration Board



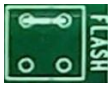
Getting Started

Step 1.
Set jumper connections to the default configuration **Load AmP from USB** as shown in the Jumper Selection Table. Also provided for clarity is a jumper legend on the PCB silkscreen. For details see: AmPLink Config & Ctrl

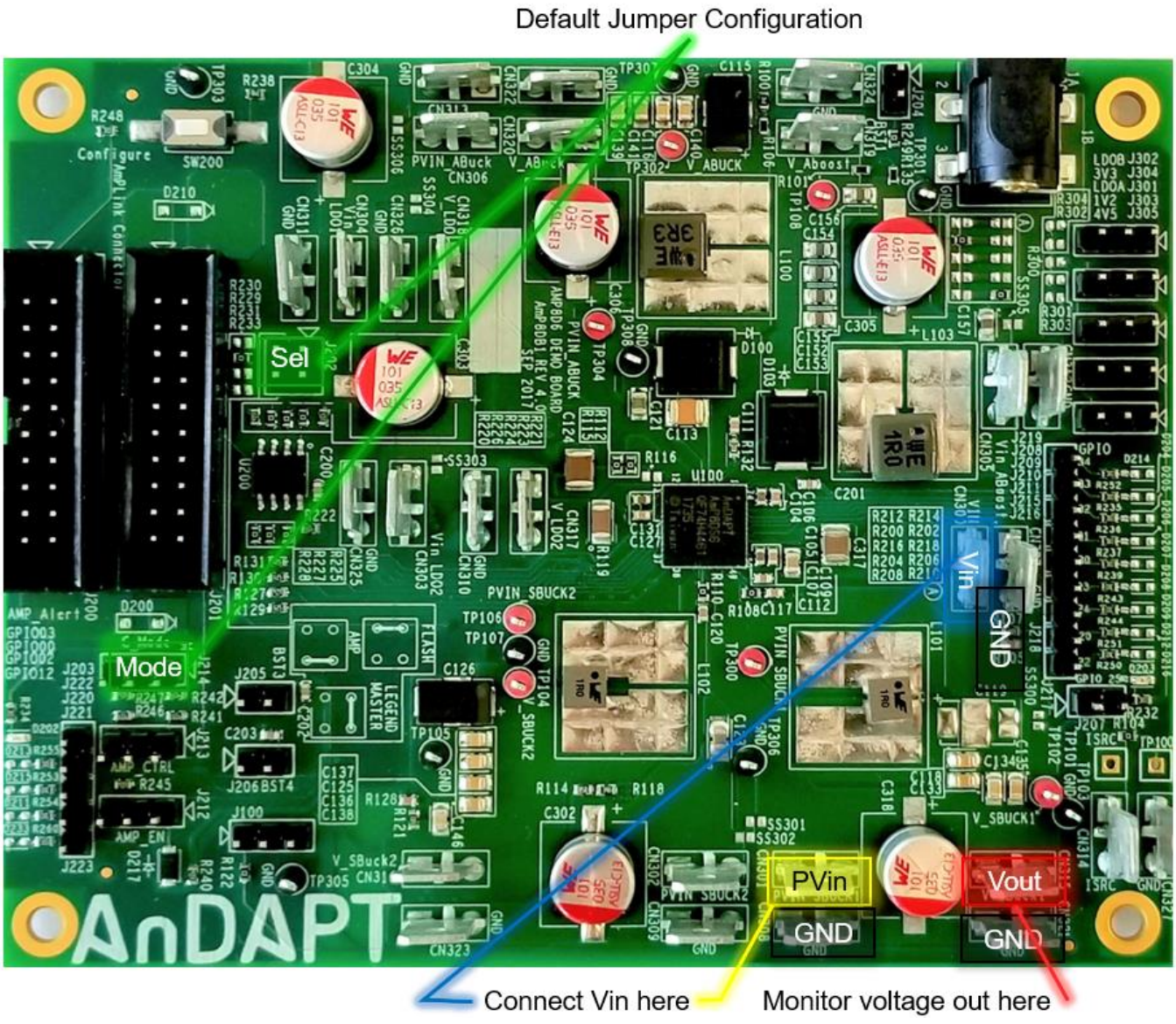
Step 2.
Connect power supplies to Vin, Sync Buck1 PVin and GND tab/spade terminal connectors as shown in the figure below. In this example, use Vin = PVIN = 12V.

Step 3.
Load WebAmP project, AmP Example Buck x1.json (See WebAmP page 3 & 4), from the Example projects folder, and compile. Connect AmPLink USB cable to computer and AmPLink 20-pin flat ribbon cable to J201 as shown on page 1. From the AmPLink tab, install AmPlink drivers if required, then click Program & Verify. Observe 1.2V on the Vout tab below (Step 4).
See: Video - Using AmPLink

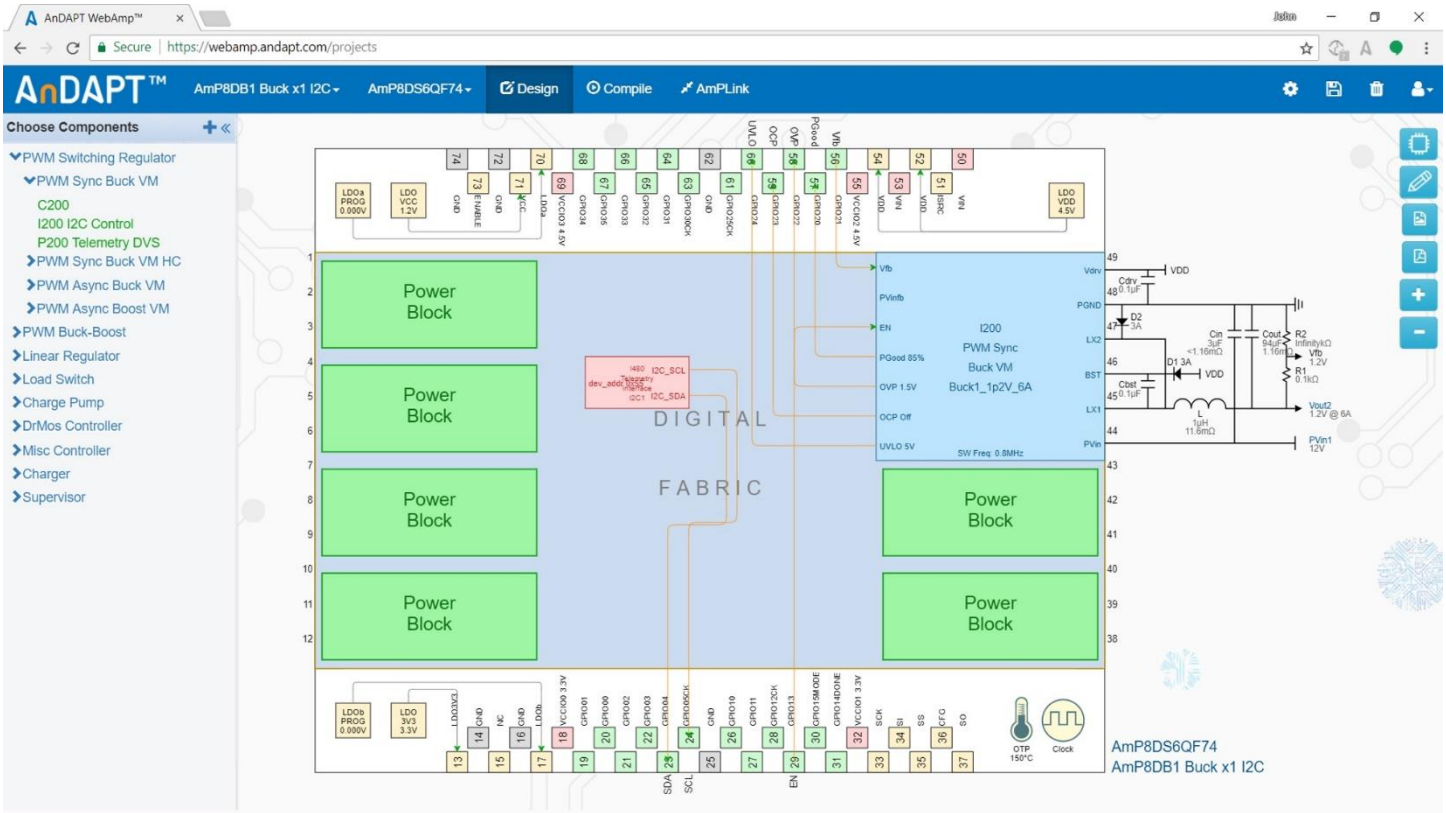
Jumper Selection Table for J202 and J214

Function	Header	Load AmP from FLASH	Load AmP from USB	Program FLASH from USB
Chip Select	J202	1-2	2-4	1-3 
Mode	J214	1-2	2-3	2-3

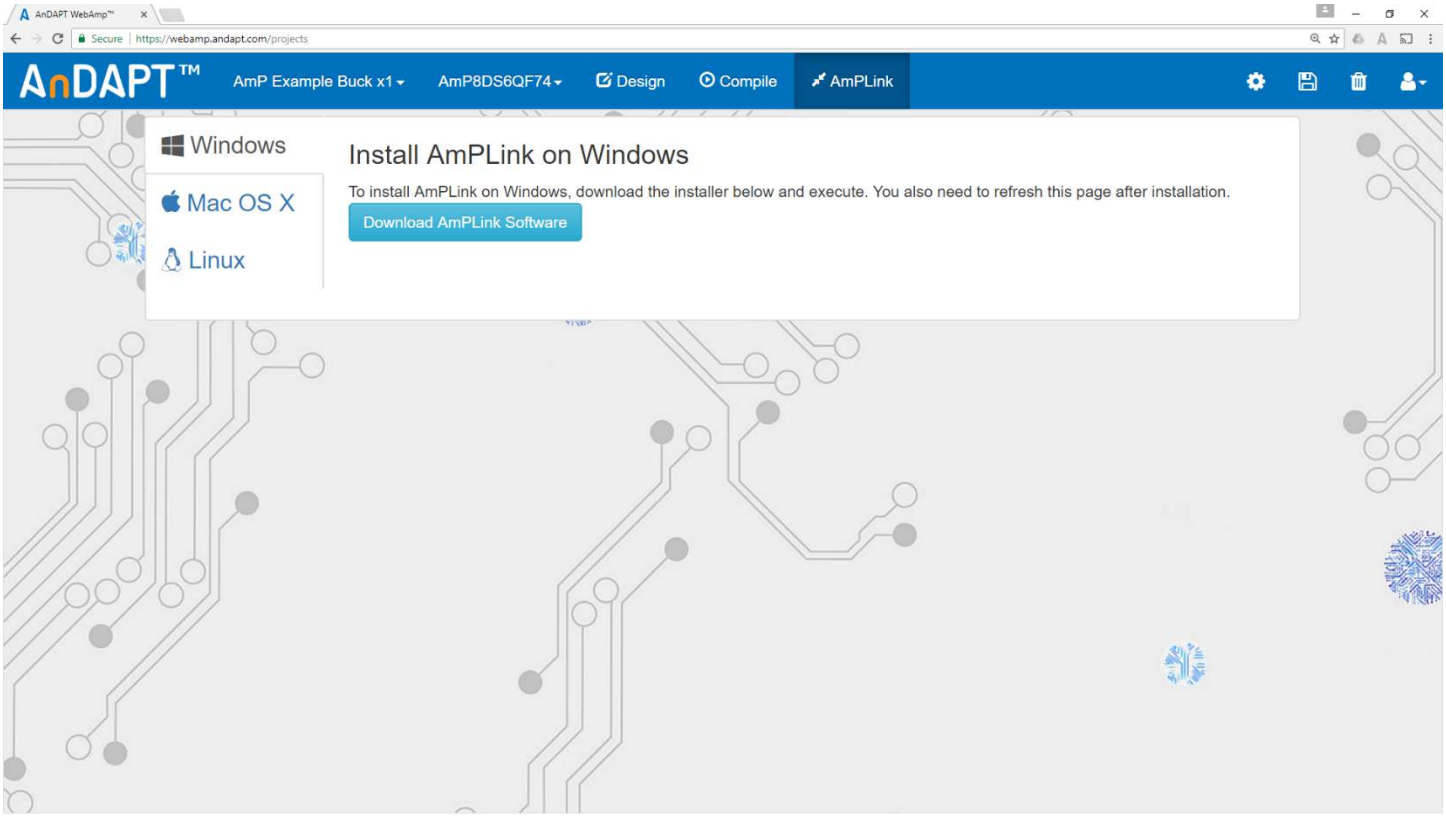
Power Supply and Jumper Configurations



Getting Started with WebAmP example project, AmP Example Buck x1 I2C



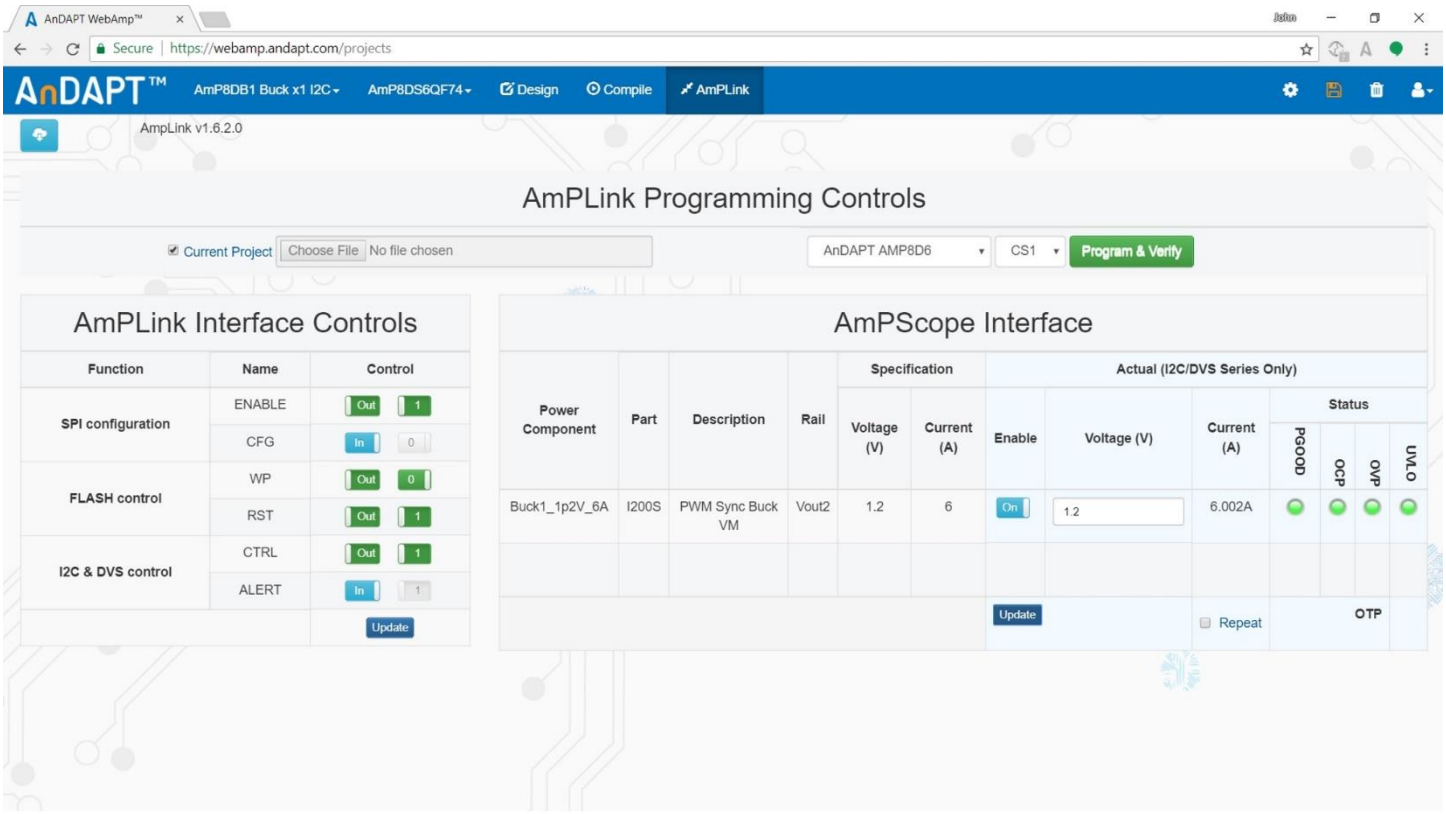
Getting Started with WebAmP: Install AmPLink



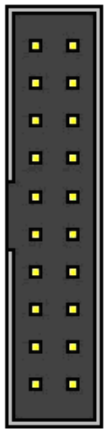
Getting Started with WebAmP: AmPLink Program, Verify & Status

Step 4.

With WebAmP project, AmP Example Buck x1 I2C.json from the Example projects, compile and click AmPLink tab. Connect AmPLink USB cable to computer and AmPLink 20-pin flat ribbon cable to J201 as shown on page 1. From the AmPLink tab shown below, click Program & Verify. Then click AmPLink Interface Controls CTRL to “1”, enabling EN pin GPIO13. Observe 1.2V on the Vout power pin shown on page 2. In the AmPScope Interface window click Update and observe status for PGOOD, OCP, OVP, UVLO (green = pass, red = fail). Also observe the measured output Current. Click checkbox, Repeat, to observe continuous read out of Status and Current.



AmPLink Pin Out



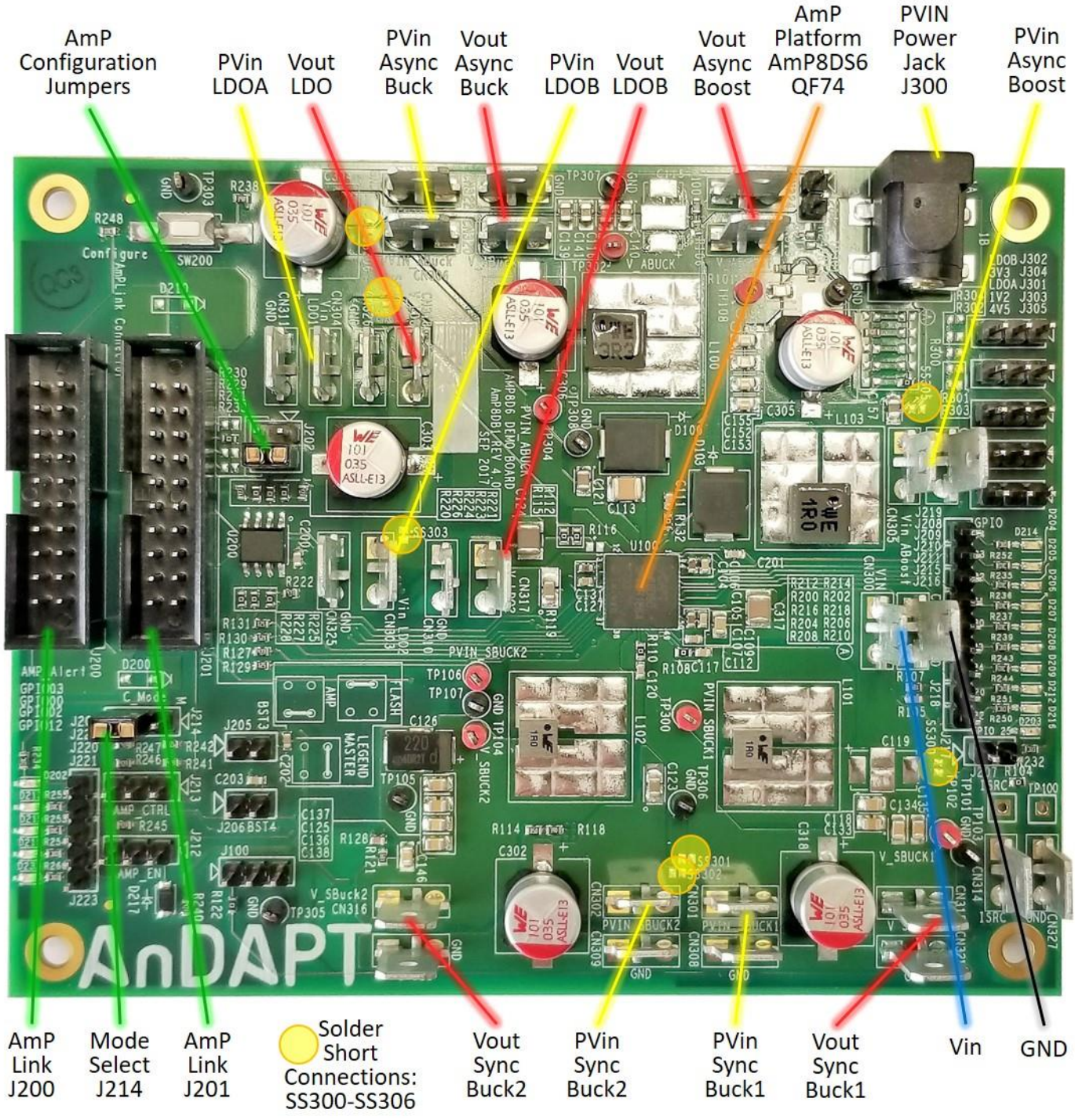
GND –	1	2	– CS2
AMP_SCLK –	3	4	– GND
AMP_SI –	5	6	– CS1
CS3 –	7	8	– CS4
AMP_Config –	9	10	– FLASH_RST
AMP_SO –	11	12	– GND
3.3V –	13	14	– AMP_SCL
FLASH_WP –	15	16	– AMP_SDA
AMP_ALERT –	17	18	– AMP_CTRL
AMP_EN –	19	20	– VBUS

Power Connections

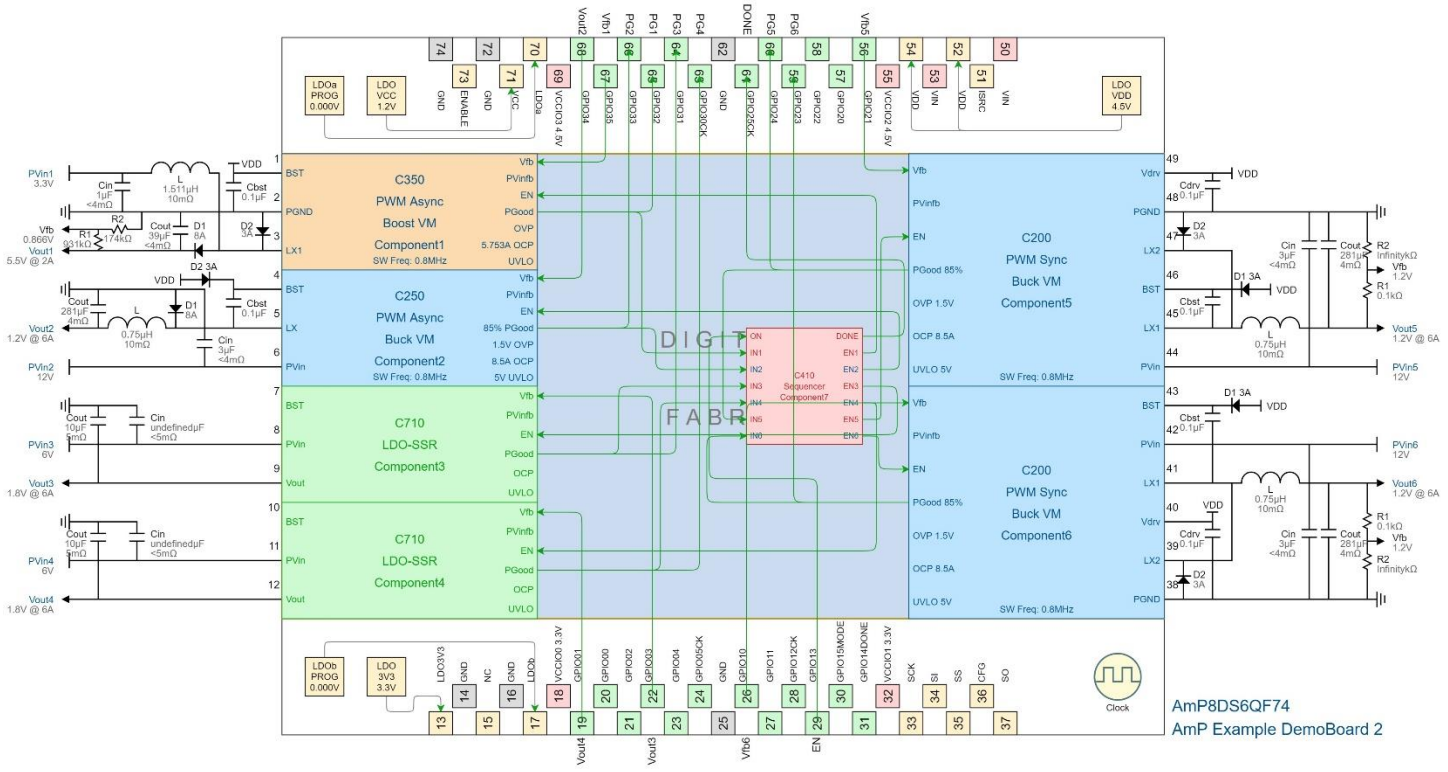
Solder Short connections SS300 to SS306, marked with the yellow circle, can be bridged with solder to reduce external wire connections. SS300 (top side of PCB near Vin) enables connection between the Vin Tab/Spade and the global PVIN, J300, Power Jack. Individual Power Component PVin inputs may be connected to PVIN as shown in the table.

Power Tab/Spade	Connect to PVIN
VIN	SS300
PVIN_SBuck1	SS301
PVIN_SBuck2	SS302
Vin_LDOB	SS303
Vin_LDOA	SS304
Vin_Aboost	SS305
PVIN_ABuck	SS306

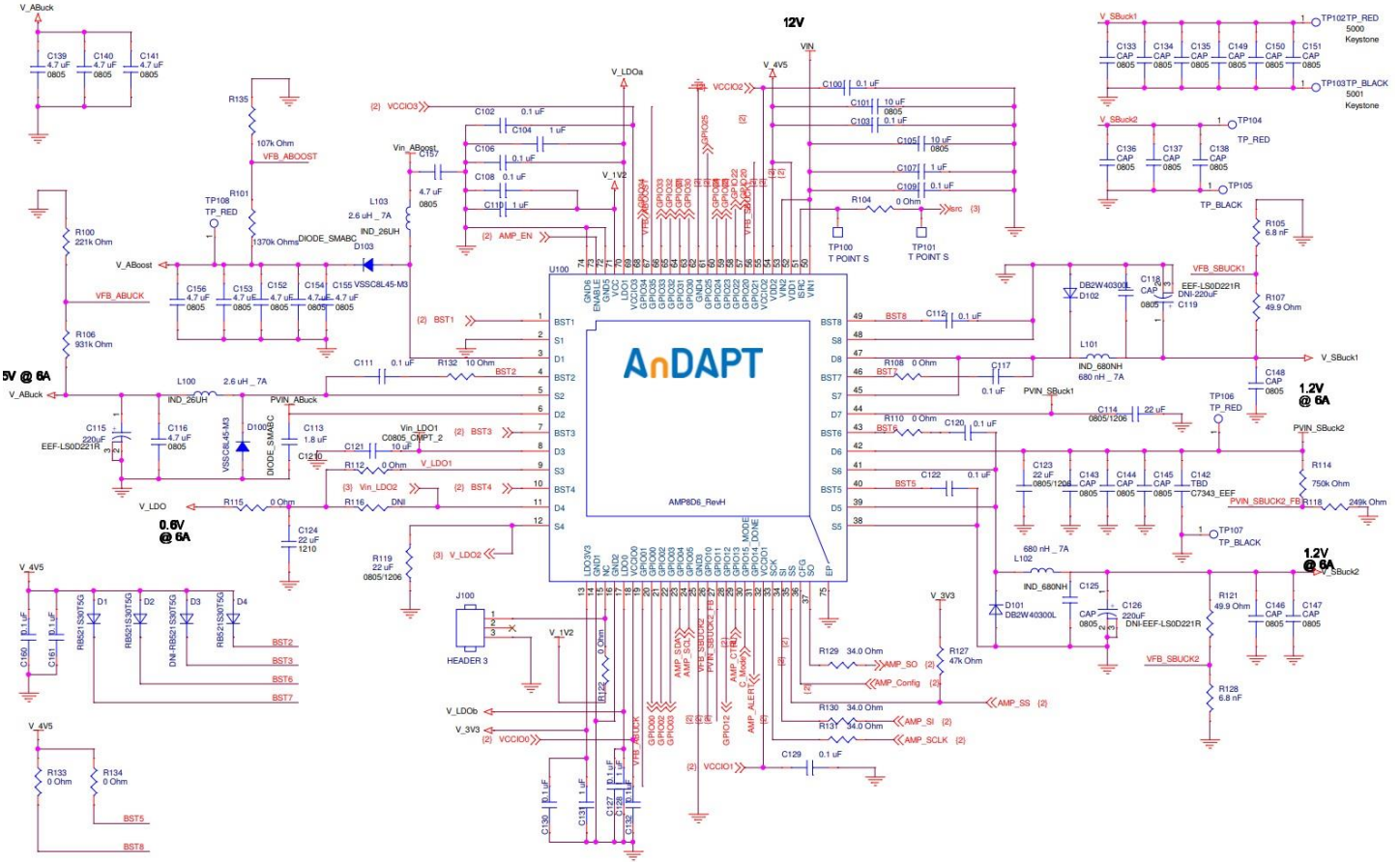
Power Connections: Demonstration Board AmP8DB1

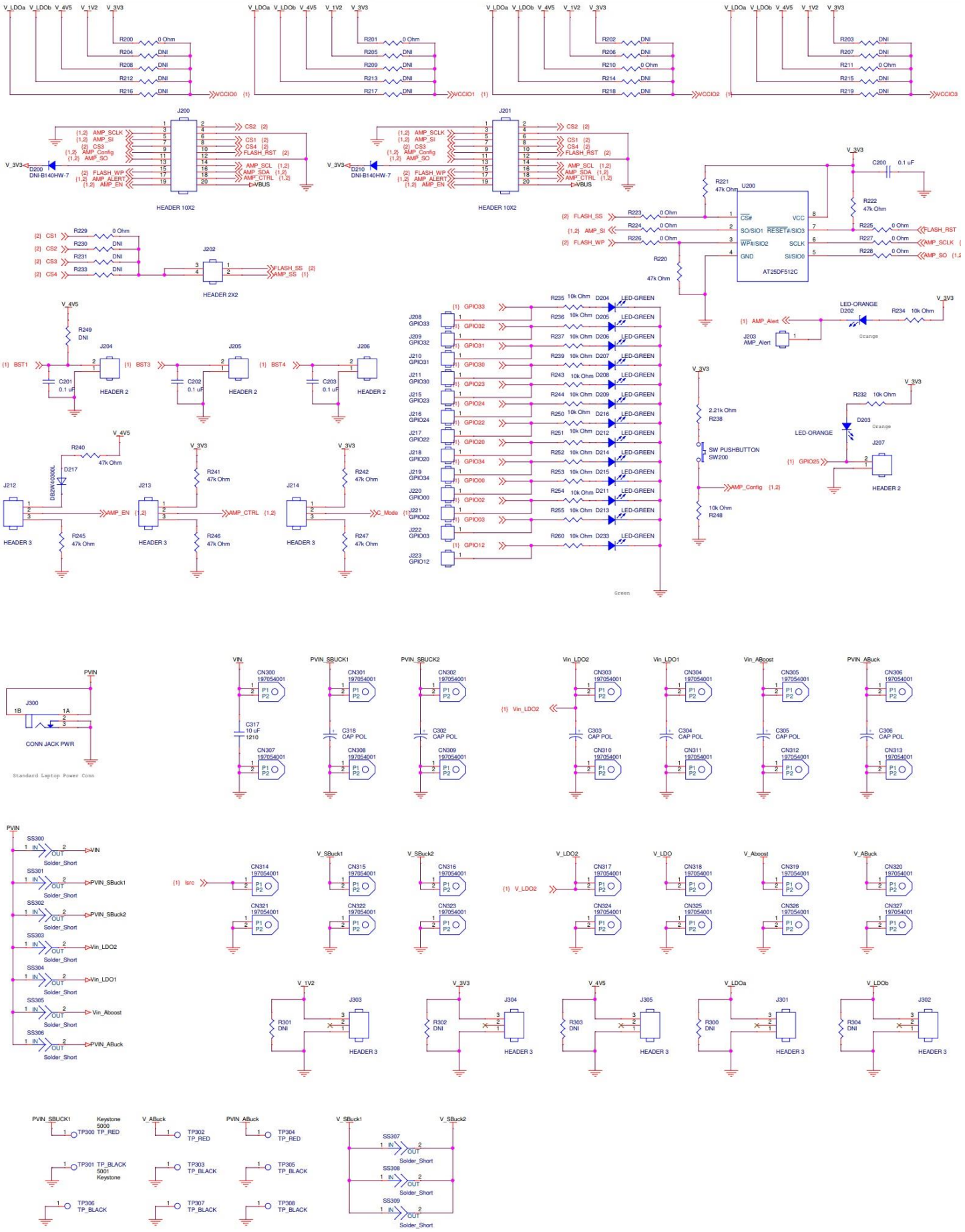


WebAmP Design: AmP Example DemoBoard



Demonstration Board AmP8DB1 Schematics





Additional Resources

- AmP Platform Datasheet
- AmPLink USB Adapter Datasheet
- AmPLink Configuration and Control
- Video - WebAmP Development Software
- Video - Using AmPLink
- Power Components Datasheets

Revision History

Date	Revision
8/19/2019	Updated Jumper Selection Table for J202 and J214
2/25/2019	Corrected part number from AmPDB1 to AmP8DB1
4/27/2018	Added I2C to Buck example enabling read status and current
3/14/2018	Revised PCB Photos and Schematic to REV 4.0
8/7/2017	Update, added Getting Started
8/1/2016	Initial

AnDAPT

On-Demand Power Management

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