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Embedded Demonstration Board Product Datasheet

EMB043INTDEMO

4.3" Integrated TFT Demonstration Board

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1. Introduction

The Displaytech EMB043INTDEMO is a demonstration board for the Displaytech INT043BTFT integrated driver board. The EMB043INTDEMO is controlled by a Microchip PIC32MX460F512L MCU and includes a USB connection, 2Mbyte SPI flash, and an SD card slot.

The INT043BTFT integrated display module powers and controls a Displaytech DT043BTFT TFT display with a 480 x 272 RGB resolution. The TFT module is mounted on a PCB on which is mounted a Solomon SSD1961 controller with integrated touch screen control and LED backlight power circuitry. Please see the [INT043BTFT Datasheet](#) for more information.

The EMB043INTDEMO is powered via a 5v USB connection, with a power switch (SW2) to turn the device on and off. All power levels required by the INT043TFT are generated and regulated by on-board voltage

regulators (see the [schematic](#) for more information).

2. INT Module Auto-Initialization

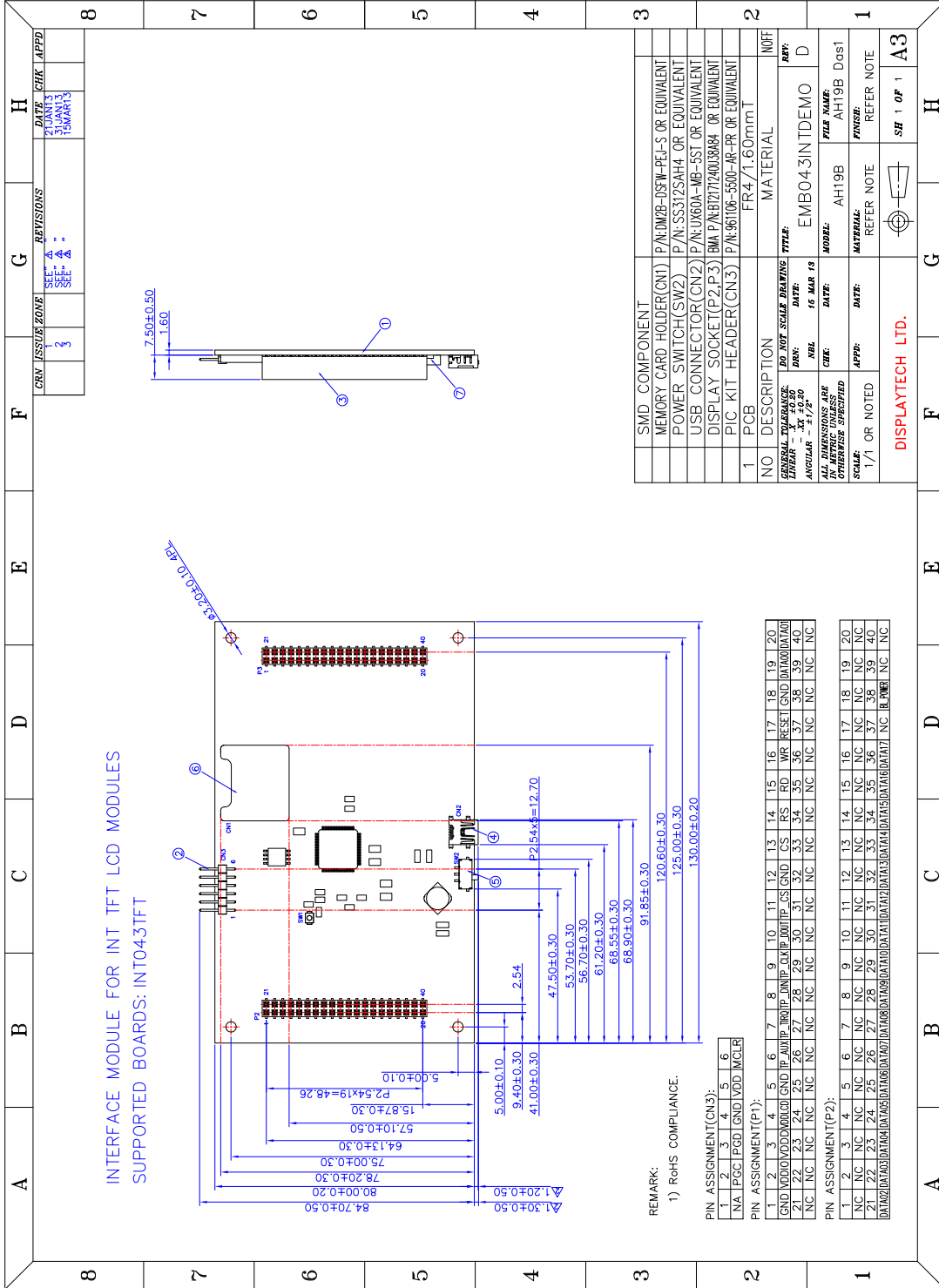
The SSD1961 as well as the Himax HX8257-A COG TFT Controller/Driver on-board the TFT module are automatically initialized upon power-up of the integrated module by an on-board ATmega8 microcontroller.

During the auto-initialization time, the PIC MCU should configure all I/O pins connected to the integrated board as inputs, as the on-board ATmega8 asserts control over these pins to configure the controller and driver. Please see the [INT043BTFT datasheet](#) for more details.

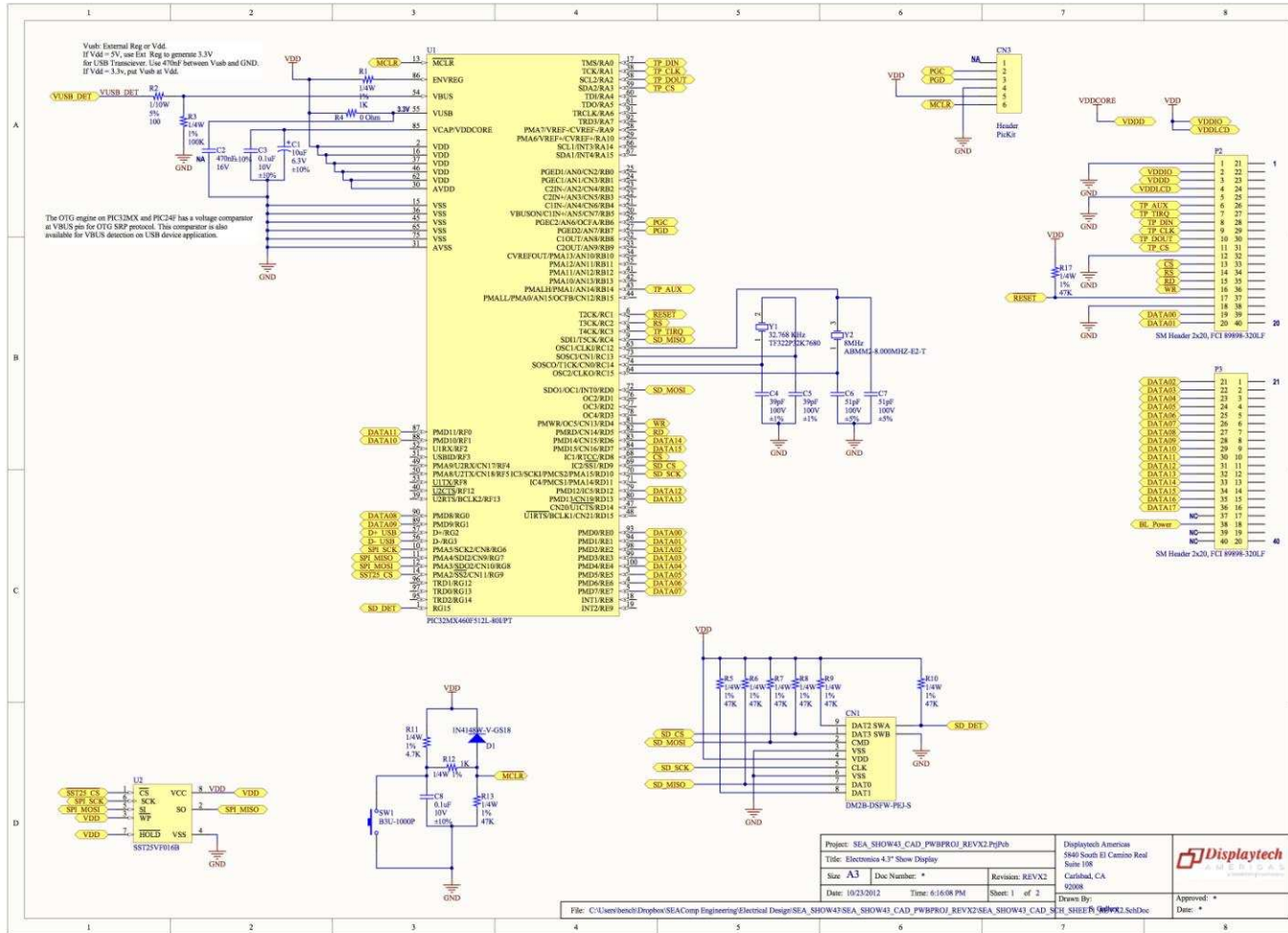
3. Example Software

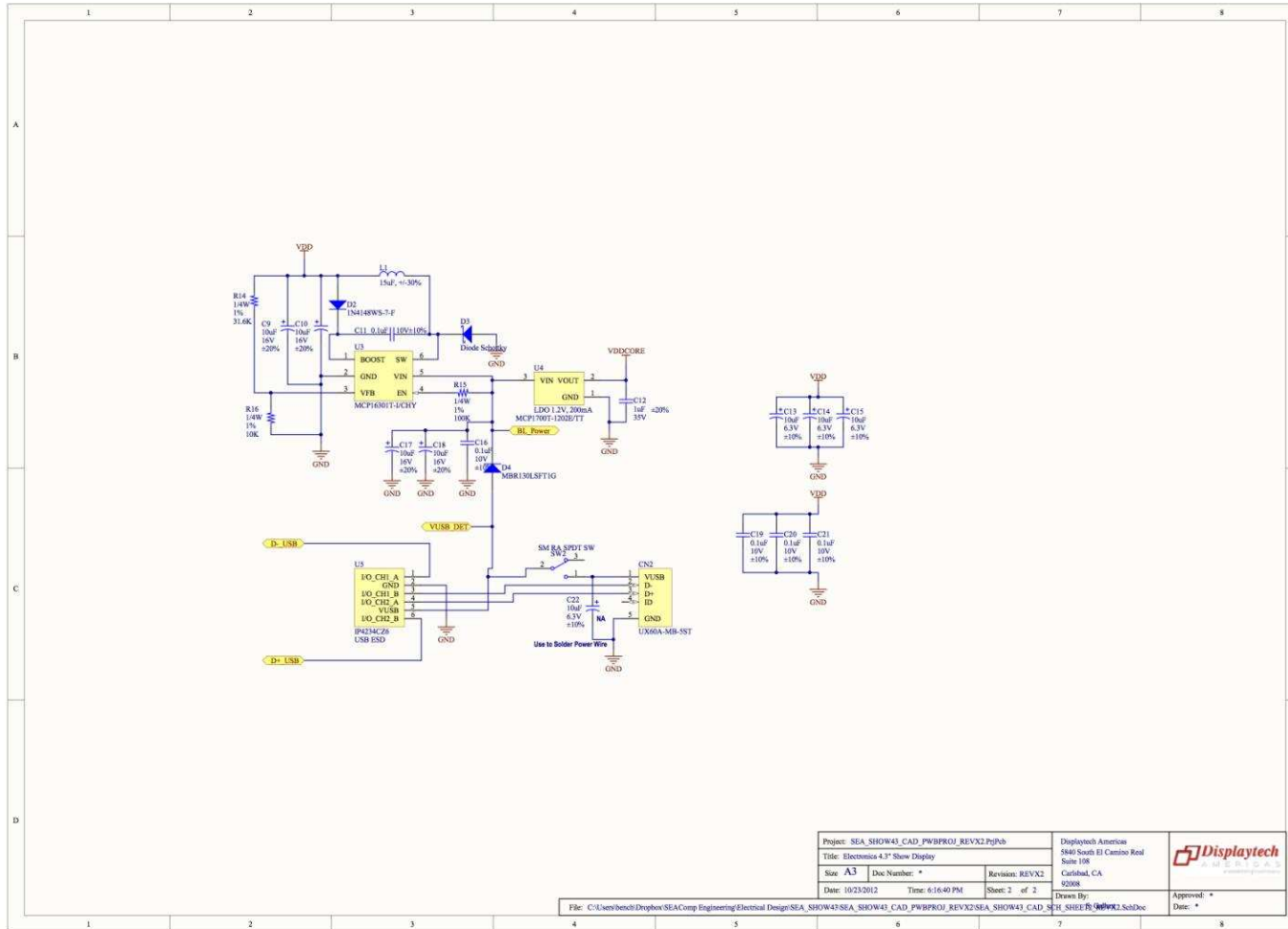
Example software is available from Displaytech upon request. Please contact Displaytech at sales@displaytech-us.com.

4. Mechanical Drawing



5. Schematic





6. Bill of Materials

Manufacturer	Part Number	Package	Qty	Value	Designator	Description
Kemet	T491A106M016AT	1206	5	10uF	C1, C13, C14, C15, C22	Polarized Capacitor (Axial)
TDK	C1608X7R1C474K	0603	1	470nF	C2	Ceramic Capacitor
Kemet	C0603C104K8RAC TU	0603	7	0.1uF	C3, C8, C11, C16, C19, C20, C21	Polarized Capacitor (Axial)
AVX	06031A390FAT2A	0603	2	39pF	C4, C5	Polarized Capacitor (Axial)
AVX	06031A510JAT2A	0603	2	51pF	C6, C7	Polarized Capacitor (Axial)
Kemet	T491A106M016AT	1206	4	10uF	C9, C10, C17, C18	Polarized Capacitor (Axial)
TDK	C1608X7R1V105M	0603	1	1uF	C12	Ceramic Capacitor
Hirose	DM2B-DSFW-PEJ-S	-	1	-	CN1	CONN MEMORY MINI SD BOTTM MT SMD
Hirose	UX60A-MB-5ST	-	1	-	CN2	USB 2.0, Right Angle, SMT, MINI-B Type, Receptacle, 5 Position
3M	961106-5500-AR- PR	-	1	-	CN3	SM Header, 1x6-Pin, Right Angle, 0.1"
Vishay	1N4148W-V-GS18	SOD-123-2	1	-	D1	High Conductance Fast Diode
Vishay	1N4148WS-7-F	SOD-323	1	-	D2	High Conductance Fast Diode
Diodes	ZLLS400TA	SOD-323	1	-	D3	Schottky Rectifier
ON Semi	MBR130LSFT1G	SOD-123FL	1	-	D4	High Conductance Fast Diode
Sumida	CDRH6D28NP- 150NC	-	1	15uF, +/-30%	L1	Inductor
FCI	89898-320LF	-	2	-	P2, P3	Header, SMT, 2x20-Pin, 0.1"
Vishay	CRCW06031K00FK EAHP	0603	2	1K	R1, R12	Resistor
Yageo	RC0603JR- 07100RL	0603	1	100	R2	Resistor

Manufacturer	Part Number	Package	Qty	Value	Designator	Description
Vishay	CRCW0603100KFK EAHP	0603	2	100K	R3, R15	Resistor
Yageo	RC0603JR-070RL	0603	1	0 Ohm	R4	Resistor
Vishay	CRCW060347K0FK EAHP	0603	7	47K	R5, R6, R7, R8, R9, R10, R13	Resistor
Vishay	CRCW06034K70FK EAHP	0603	1	4.7K	R11	Resistor
Vishay	CRCW060331K6FK EA	0603	1	31.6K	R14	Resistor
Vishay	CRCW060310K0FK EAHP	0603	1	10K	R16	Resistor
Omron	B3U-1000P	ELTSM-65	1	-	SW1	Switch
NKK Switches	SS312SAH4	-	1	-	SW2	SM SPDT Sub Min Tog Switch, Right Angle
Microchip	PIC32MX460F512L -80I/PT	TQFP-PT100	1	-	U1	80 MHz32-Bit Microcontroller with USB, 512KB Program Memory, 100-pin TQFP
Microchip	SST25VF016B-75- 4I-S2AF	SOIJ-SM8	1	-	U2	16mbit SPI Bus Serial flash, 8-Pin SOIJ, Industrial Temperature
Microchip	MCP16301T-I/CHY	SOT-23-6	1	-	U3	Buck Adj 0.6A SOT23-6 Regulator. 2-15Vout, 4-30Vin
Microchip	MCP1700T- 1202E/TT	SOT23-3	1	-	U4	LDO, 3-Pin SOT-23, 1.2V Out, 200mA
NXP	IP4234CZ6	SC-74, SOT- 457	1	-	U5	Single USB 2.0 ESD protection to IEC 61000-4-2 level 4
CTS	TF322P32K7680	3215	1	-	Y1	Crystal Oscillator
CTS	ABMM2- 8.000MHZ-E2-T	SMD 6mmx3.6mm	1	-	Y2	Crystal Oscillator

7. Component Datasheets

Displaytech INT043BTFT	Link
Displaytech DT043BTFT	Link
Solomon Systech SSD1961	Link
Maximum Integrated MAX11802	Link
Microchip PIC32MX460F512L Microcontroller	Link
SST SST25VF016B 16 Mbit SPI Serial Flash	Link
Hirose DM2B-DSFW-PEJ-S	Link
Microchip MCP16301T-I/CHY	Link
Microchip MCP1700T-1202E/TT	Link