PART NUMBER DESIGNATION

Standard Product

= 68PPC2-2-AAABBBIRFVMTESZ

AAA	BBB	I	R	F	V	M	T	E	S	Z

Module Slot 1 (See Available Function Modules)
Z00 = No Module (See Note 1)

Module Slot 2 (See Available Function Modules)
Z00 = No Module (See Note 1)

Processor Options
0 = NXP QorIQ® T2080 PPC Quad Core (@ 1.5 GHz)

DDR3 SDRAM (Size)
0 – 2 = Reserved
3 = 8 GB (Standard)

SATA NAND Flash
0 – 3 = Reserved
4 = 32 GB (Standard)

IPMC Option (See Note 2)
0 = None
1 = IPMC (VITA 46.11 Tier 2 compliant; basic)

Mechanical Options
F = Front Panel (4HP, 0.8" pitch) and Rear I/O
P = Blank Front Panel, (4HP, 0.8" pitch) and Rear I/O
W = Rear I/O Only, conduction cooled with Wedgelocks
J = Front Panel (5HP, 1.0" pitch) and Rear I/O
K = Blank Front Panel (5HP, 1.0" pitch) and Rear I/O

Temperature/Environmental Options (All boards are Conformal Coated)
C = 0° to 70°C
H = -40°C to 85°C

Ethernet Options
0 = No Ethernet
1 = MB Port A (10/100/1000Base-T) to Front
2 = MB Port A (10/100/1000Base-T) to Rear
3 = MB Port A (10/100/1000Base-T) to Front, Port B (10/100/1000Base-T) to Rear
4 = MB Port A (10/100/1000Base-T) & Port B (10/100/1000Base-T) to Rear
A = MB Port A (1000Base-KX (SerDes) Interface) to Rear
B = MB Port A (1000Base-KX (SerDes) Interface) & Port B (1000Base-KX (SerDes) Interface) to Rear
C = MB Port A (10/100/1000Base-T) to Front & Port B (1000Base-KX (SerDes) Interface) to Rear
D = MB Port A (1000Base-KX (SerDes) Interface) & Port B (10/100/1000Base-T) to Rear
E = MB Port A (10/100/1000Base-T) & Port B (1000Base-KX (SerDes) Interface) to Rear

Software
0-4 = Reserved
5 = VxWorks 6.9
6 = VxWorks 6.9/BIT (pending)
7 = VxWorks 653
8 = VxWorks 653/BIT (pending)
A = Deos 653
B = Deos 653/BIT (pending)

Special Options
0 = TTL I/O (x4), I2C offboard (default)
1 = TTL I/O (x4), SATA offboard (pending)
2 = Mod-2 I/O 33-36 fitted in lieu of TTL I/O (x4)
9 = Special Configuration (see code)

Specifications are subject to change without notice.

Notes

1.	**Module Slot 1 (AAA), Module Slot 2 (BBB)** 32-pins rear I/O available (with TTL x4)
2.	**IPMC Definition** 0. OPTION "0": DEFAULT. The board will not provide IPMC functionality. The board in this default configuration will boot normally without a Chassis Manager being present. 1. OPTION "1": The board will provide VITA 46.11 Tier 2 compliant basic IPMC functionality. The board will be configured expecting Chassis Manager communication on boot-up and requires the +3.3V-AUX power supply (PS) to be available on the backplane (provision of +3.3V-AUX is a VPX requirement).

Available Function Modules

GEN5 (SERDES/SBC) Platforms
Specification summaries are provided here. For detailed specifications, see Function Module pages on website.

Note 1 – Wide selection (see code table notes in Operations Manual)
Note 2 – Contact factory for availability / specifications subject to change
Note 3 – Double-width module and/or platform support dependency
Note 4 – Enhanced Functionality (Pulse count input/PWM output):
TL2, TL4, TL6, TL8, DF2, DT4, DT5, DT6

I/O

Function	Module	Channels	Input Scaling	Resolution	Accuracy (±)	Sampling Rate (max.)	Type
A/D Converter	AD1	12	±10, 5, 2.5 or 1.25 VDC	24-Bit	0.05% FSR	250 kHz	Sigma-Delta
	AD2	12	±100, 50, 25 or 12.5 VDC	24-Bit	0.1% FSR	250 kHz	Sigma-Delta
	AD3	12	±25 mA	24-Bit	0.1% FSR	250 kHz	Sigma-Delta
	AD4	16	±10, 5, 2.5 or 1.25 VDC or ±25 mA	16-Bit	0.1% FSR	400 kHz	SAR Multiplexed
	AD5	16	± 50, 25, 12.5 or 6.25 VDC	16-Bit	0.1% FSR	400 kHz	SAR Multiplexed
	AD6	16	±100, 50, 25 or 12.5 VDC	16-Bit	0.15% FSR	400 kHz	SAR Multiplexed
Function	**Module**	**Channels**	**Output Range**	**Resolution**	**Accuracy (±)**	**Settling Time**	**Current Output (max.)**
D/A Converter	DA1	12	±10 or 0-10 VDC or ±25 mA	16-Bit	0.05% FSR	10 µs typical	±25 mA
	DA2	16	±10 or 0-10 VDC	16-Bit	0.15% FSR	10 µs typical	±10 mA
	DA3	4	±40 or 0-40 VDC or ±100 mA	16-Bit	0.15% FSR	10 µs typical	±100 mA
	DA4 [2]	4	±20 to ±80 VDC	16-Bit	0.15% FSR	350 µs max.	±10 mA
Function	**Module**	**Channels**	**Input Range**	**Output Range**	**Programmable**	**Current Out (max.)**	**Comments**
I/O, Discrete	DT1/DT4[4]	24	0-60 VDC	0-60 VDC	Input or Output/PWM	±500 mA	Source/sink (out)
	DT2/DT5[4]	16	±80 V	±80 V	Input or Output/PWM	±625 mA	Isolated/Ch. switch (out)
	DT3/DT6[2]	4	±100 V	±100 V	Input or Output/PWM	3 A	Isolated/Ch. switch/bridge
Function	**Module**	**Channels**	**Input Range**	**Output Level**	**Programmable**	**Comments**	
I/O, TTL/CMOS	TL1/TL3/TL5/TL7	24	0-5.5 V	TTL/CMOS	Input or Output	Standard functionality	
	TL2/TL4/TL6/TL8[4]	24	0-5.5 V	TTL/CMOS	Input or Output	Enhanced functionality	
Function	**Module**	**Channels**	**Input Range (422)**	**Input Range (485)**	**Output Range (422/485)**	**Comments**	
I/O, Differential	DF1/DF2[4]	16	-10 V to +10 V	-7 V to +12 V	-0.25 V to +5 V		
Function	**Module**	**Channels**	**Type**	**SW Volt/ Current**	**SW Power**	**Comments**	
Relay	RY1, RY2	4	SPDT (1 CH Form C)	220 V / 2 A (max.)	60 W / 62.5 VA (max.)	RY1 = non-latching; RY2 = latching	

Combination Modules

Function	Module	Channels	Operational Modes (MIL-STD-1553)	Programmable (Discrete I/O)	Comments
Combination – MIL-STD-1553 & Discrete I/O	CM1	2 channels MIL-STD-1553 12 channels Discrete I/O	BC, RT, BM, BM/RT	Input or Output/PWM	Part discrete I/O, part MIL-STD-1553 communications based on FT2 and DT4 modules

Measurement/Simulation

Function	Module	Channels	Frequency	Accuracy	Voltage	Power (max.)	Comments
AC Reference	AC1 [2]	2	47 Hz – 20 kHz	±3% (base)	2-115 V_{RMS}	5 VA	(1 Ch. LV; 1 Ch HV)
	AC2	2	47 Hz – 20 kHz	±3% (base)	2-28 V_{RMS}	5 VA	
	AC3 [2]	2	47 Hz – 2.5 kHz	±3% (base)	28-115 V_{RMS}	5 VA	
Function	**Module**	**Channels**	**Frequency**	**Resolution**	**Accuracy (±)**	**Interface**	
L(R)VDT/D (meas.)	LDX[1]	4	47 Hz to 20 kHz	16-Bit	0.025% FSR	2, 3 or 4-wire programmable	
Function	**Module**	**Channels**	**Frequency**	**Resolution**	**Accuracy (±)**	**Tracking Rate**	
SYN(RSL)/D (meas.)	SDX[1]	4	47 Hz to 20 kHz	16-Bit	±1 arc-min (0.0167°)	953.67 RPS max. (based on bandwidth value)	
Function	**Module**	**Channels**	**Frequency**	**Resolution**	**Accuracy (±)**	**Power (max.)**	
D/SYN(RSL) (sim.)	DSX[1,2] (DRX[1, 2])	1, 2, 3	47 Hz – 20 kHz	16-Bit	±1 arc-min (0.0167°)	3, 2.2, 0.5 VA/channel	
Function	**Module**	**Channels**	**Frequency**	**Resolution**	**Accuracy (±)**	**Power (max.)**	
D/L(R)VDT (sim.)	DLX[1, 2]	1, 2, 3	47 Hz – 20 kHz	16-Bit	0.1%, 0.1%, 0.3% FSR	3, 1.5, 0.5 VA/channel	
Function	**Module**	**Channels**	**Update Rate**	**Resolution**	**Accuracy (±)**	**Interface**	**Comments**
Thermocouple (meas.)	TC1	8	4.17 – 470 Hz	24-Bit	0.2-0.9° C (typ.) 0.2% FSR	J, K, T, E, N, B, R, S Raw A/D input	TC type dependent ±100 mV
Function	**Module**	**Channels**	**Update Rate**	**Resolution**	**Accuracy (±)**	**Interface**	
RTD (meas.)	RT1	8	Programmable up to 4800 Hz	16-Bit	0.05% FSR (4-wire)	2, 3 or 4-wire	

Communications

Function	Module	Channels	Protocols	Latency	Communication	Transmission
Time Triggered Ethernet	TE1	3 Triple-redundant	IEEE 802.3 ARINC664 part 7(AFDX)	ARINC664 part 7 (AFDX): 1-10 ms	PCIe GEN II (5.0 Gbps) Endpoint	ARINC664 part 7 (ASDX): Asynchronous
			SAE AS6802 TTEthernet	TTE: less than 100 µs, at 12.5 µs.switch		TTE: Synchronous
Function	**Module**	**Channels**	**Frequency**	**Input/Output**	**Message Buffer**	**ARINC Standard**
ARINC Communications	AR1	12	100 kHz or 12.5 kHz	Rx/Tx	256 word Tx/Rx	429/575
	AR2	2	11 kHz	Ch.1 Rx and Tx Ch.2 Rx or Tx	128 word Tx/Rx	568/579
Function	**Module**	**Channels**	**CAN Protocol**	**Message Buffer**	**Data Rate (Prog.)**	**Comments**
CANBus	CB1/CB2/CB3	8	CB1= 2.0A/B CB2= J1939 CB3 = Both	16K Rx/Tx	1 Mbps (max.)	Bosch® IP Core
Function	**Module**	**Channels**	**Operational Modes**	**Onboard RAM**	**Coupled**	
MIL-STD-1553	FT1/FT4	1	BC, RT, BM, BM/RT	128 kByte	FT1 = Transformer/FT4 = Direct	
	FT2/FT5	2	BC, RT, BM, BM/RT	128 kByte/Ch.	FT2 = Transformer/FT5 = Direct	
	FT3/FT6	4	BC, RT, BM, BM/RT	64 kByte/Ch.	FT3 = Transformer/FT6 = Direct	
	Contact factory regarding MIL-STD-1553 software protocol compliance with RS422 hardware interface levels applications.					
Function	**Module**	**Channels**	**HW Interface Levels Support**	**Bit rate (Async/Sync)**	**Tx/Rx Buffer**	**Comments**
Serial Communications	SC1/SC2/SC7	4	RS-232/422/485 (MIL-STD-188C)/423	1 Mbps (Async) / 10 Mbps (Sync) per Ch.	8 MB / ea. (16-bit word)	Partial modem. SC2 is isolated version. SC7 provides 1-GND/Ch.
	SC3	8	RS-232/422/485	1.5 Mbps (Async)	Up to 32 MB	GPIO or Async only
Function	**Module**	**Ports**	**Type**	**Data Rate**	**Comments**	
Ethernet Switch	ES1[2,3]	12	Unmanaged/Layer 2+	10/100/1000-B-T	Broadcom® BCM56150; 16 ports of 10/100 & 1Gb mixed possible	
Function	**Module**	**Ports**	**Type**	**Data Rate**	**Module I/F**	**Comments**
Ethernet NIC	EM1	2	Full SBC support	10/100/1000-B-T	PCIe/Intel® 82580	Additional Ethernet ports

Storage

Function	Module	Size (GB)	Type	Data Rate	Module I/F	Comments
SSD/FLASH	FM1, FM2, FM4, FM5	240, 480, 128, 256	Full SBC Support	300 Mbps (max.)	SATA II	Additional SBC FLASH support