

# Zeli Systems

## SATPAK-CPCI-SAASM-FORCE5GS



### Trimble FORCE5GS Military Precise Position Service (PPS) GPS Solution for the CompactPCI bus with SAASM

#### Features:

- The SATPAK-CPCI-SAASM is a 6U form factor carrier board that provides a CompactPCI interface for the Trimble FORCE5GS GPS module.
- Accommodates and interfaces with the Standard Electronics Module (SEM) form factor adopted by the Trimble FORCE5GS.
- 32-bit PCI CompactPCI interface for FORCE5GS.
- Employs a PLX9050 bus target interface chip to provide a CompactPCI interface to the FORCE5GS Bi-Directional Data Port (BDDP) defined by ICD-GPS-167 published by the Joint Program Office (JPO).
- Primary FORCE5GS power is +5VDC provided by the CompactPCI power pins.
- The SATPAK-CPCI-SAASM-FORCE5 provides access to all the FORCE5GS capabilities including: 12 Channel, RF or L1/L2 IF antenna equipment (AE) interface, application programmable discrete interface, bi-directional data port (BDDP) interface, time-mark Interface, precise time interface, RS232 and RS-422 interfaces, Have Quick interface, GRAM compliance, L1/L2, DS-102/DS-101 key loading, Zeroize, PVT output, navigation capability, and ICD-GPS-153 interface.
- Front-panel connector (J3) is dedicated for serial communication with RS-232 and RS-422 serial communication channels of the FORCE5GS. The BDDP channel may be accessed via J3 as selected by the FORCE5 ICD1 input discrete.
- Time mark signals and precise time signals accessed via front-panel connector J4.
- DS-102/DS-101 key loading performed via front-panel female 9-contact D-Subminiature connector J5.
- Ancillary signals that include the zeroize discrete, AE interface, auxiliary power, and application programmable discrete signals are accessed via front-panel connector J6.
- GRAM ready status via green front-panel LED (L1).
- Crypto valid status indicator via green front-panel LED (L2).
- RF or L1 IF IN and L2 IF IN via front panel SMA connectors J1 and J2.
- The SATPAK-CPCI can be provided with or without the FORCE5GS GPS module attached.
- Custom cable assemblies available.
- The SATPAK-CPCI-SAASM is compliant with the PICMG 2.0 R3.0 specification.

#### SATPAK-CPCI-SAASM Function:

The SATPAK-CPCI-SAASM is a 6U form factor carrier board that provides a Compact-PCI interface for the Trimble FORCE5GS.

#### Communicating with the Trimble FORCE5GS:

The Trimble FORCE 5 utilizes both parallel and serial communication modes. Parallel communication with the FORCE5GS is accomplished through the 32-bit CompactPCI Bus and the FORCE5GS Bi-Directional Data Port (BDDP). The BDDP is defined by ICD-GPS-167 published by the JPO. RS-232 and RS-422 serial communication channels of the FORCE5GS are accessed at front-panel connector J3. The BDDP serial channel may be accessed via J3 as selected by the FORCE5GS ICD1 discrete input.

#### Time Interface Signals:

The GRAM-S Precise Time Interface signals and Time Mark Interface signals indicated in the block diagram are available on front-panel connector J4.

#### Key Loading:

DS-101 and DS-102 key loading signals are provided on the 9-contact front-panel D-Subminiature connector J5.

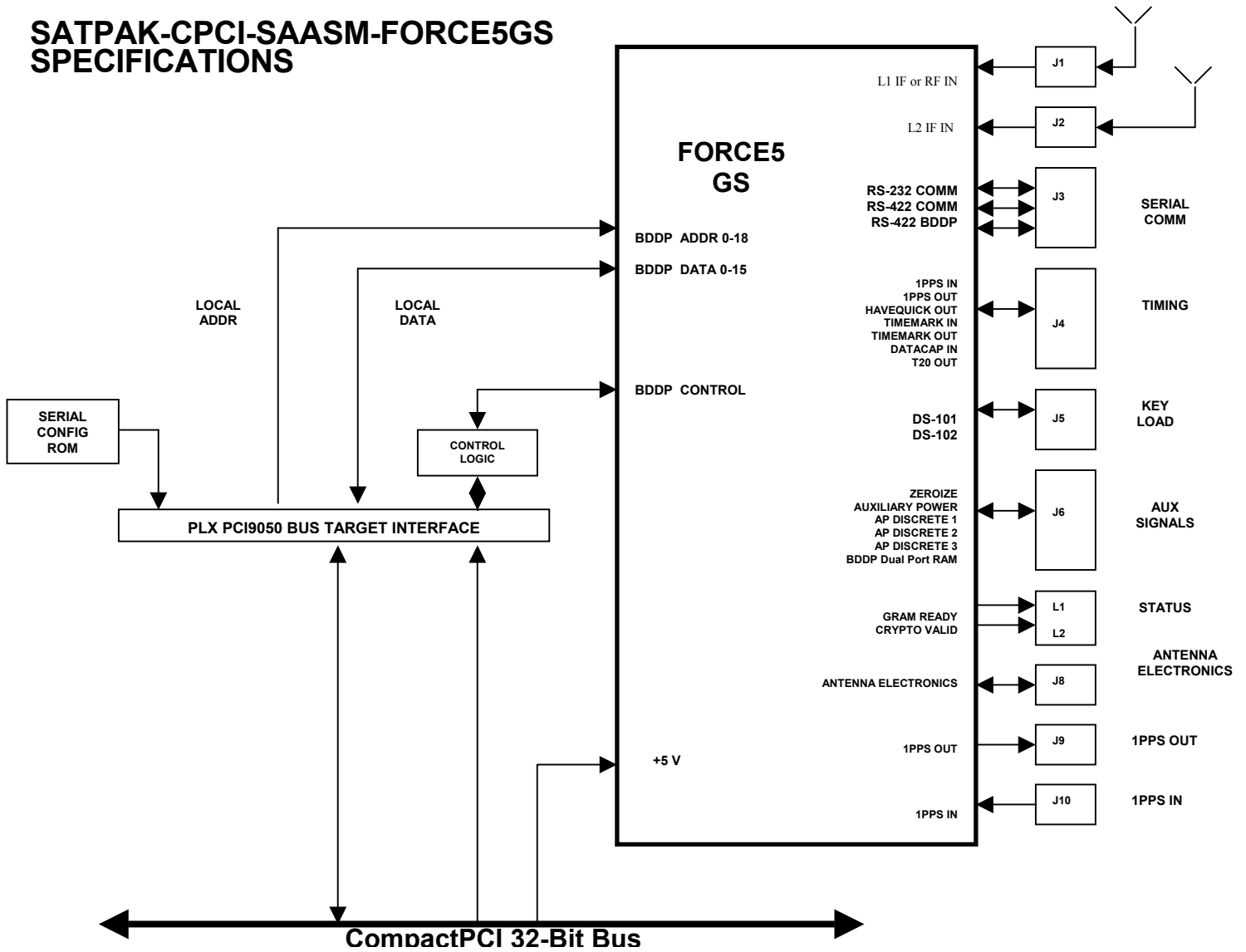
#### Access to Additional Critical FORCE5GS Signals:

Front-panel connector J6 provides access to other critical FORCE5GS signals. These signals include the zeroize discrete, Antenna Electronics (AE) interface signals, auxiliary power, and Application Programmable (AP) discrete signals.

#### SATPAK-CPCI-SAASM Power and Hot Swap:

The SATPAK-CPCI-SAASM-FORCE5GS incorporates a CompactPCI connector key to operate at + 5VDC. +12 VDC is used only if a second 1PPS buffered output is required. The CompactPCI hot swap feature is not supported by the SATPAK-CPCI-SAASM.

## SATPAK-CPCI-SAASM-FORCE5GS SPECIFICATIONS



### Mechanical, Environmental, Power:

Physical Dimensions: 233.35 mm x 160 mm x 15.24 mm  
(with FORCE5GS attached)

Operating Temp: -40°C to 85° C

Humidity: 0 to 99% (non-condensing)

Power: +5V +/- 5%, 0.5 A  
(without FORCE5GS)  
+5V +/- 5%, 3.7 Amp maximum  
(with FORCE5GS)  
+12V +/- 5%, 0.010 Amp maximum  
(required for second 1PPS buffered output only)

Fabrication: 1.6 mm, FR4

### Front-Panel Connectors and Indicators:

**RF IN or L1 IF IN:** J1  
Conn: SMA Bulkhead Jack  
Type: Coaxial

**L2 IF IN:** J2  
Conn: SMA Bulkhead Jack  
Type: Coaxial

**Serial Comm:** J3  
Conn: 15 Contact D-Subminiature  
Type: High Density Female

**Timing:** J4  
Conn: 15 Contact D-Subminiature  
Type: High Density Female

**Key Load:** J5  
Conn: 9 Contact D-Subminiature  
Type: Standard Density Female

**Auxiliary Signals:** J6  
Conn: 15-Contact D-Subminiature  
Type: High Density Female

**Antenna Electronics:** J8  
Conn: 15-Contact D-Subminiature  
Type: High Density Female

**1PPS Output:** J9  
Conn: SMA Bulkhead Jack  
Type: Coaxial

**1PPS Input:** J10  
Conn: SMA Bulkhead Jack  
Type: Coaxial

**Status Indicator:** L1  
Type: Green LED  
Function: GRAM Ready

**Status Indicator:** L2  
Type: Green LED  
Function: Crypto Valid

**Switch:** S1  
Type: Recessed pushbutton  
Function: Zeroize