ZOEN 3

RTM MODULE & BACKPLANE
v.1.0

MSK Group

1. Introduction

In the ATCA crate the zone 3 area is intended for customise connection between the carrier and a Rear Transmission Module (RTM). In this area also a custom backplane connecting several carrier boards might be implemented.
All characteristic signals for LLRF system, such inputs of intermediate frequency from down-converters, clock and trigger signals must be provide to the carrier through zone 3.

2. Requirements

Following signals must be connected to the carrier to/form zone 3:

- 30 analog[1], differential inputs to the carrier – down-converted IF in range 1 to 10 MHz, isolation > 50 dB
- 3 clock, differential signals, input/output, BLVDS, jitter < 5 ps rms, frequency in range 1-100 MHz
- 3 trigger, differential signals, input/output, BLVDS, jitter < 5 ps rms, frequency in range 1 Hz - 1 MHz
- power supply for down-converter (+12V, 3A) form the carrier
- I^2C IPMI lines for a down-converters from the carrier
- 1.3 GHz reference signal, single-ended, 50 Ω, 0 dB, form the backplane to the carrier
- 81 MHz reference signal, single-ended, 50 Ω, 0 dB, form the backplane to the carrier
- 2 output signals from the carrier to the backplane, 1.3 GHz, single-ended, 50 Ω, 0 dB, output from a vector modulator
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[1] It is planed to have 3 AMC bays carrier board. For each AMC bay 10 analog, differential signals are connected from the carrier board.

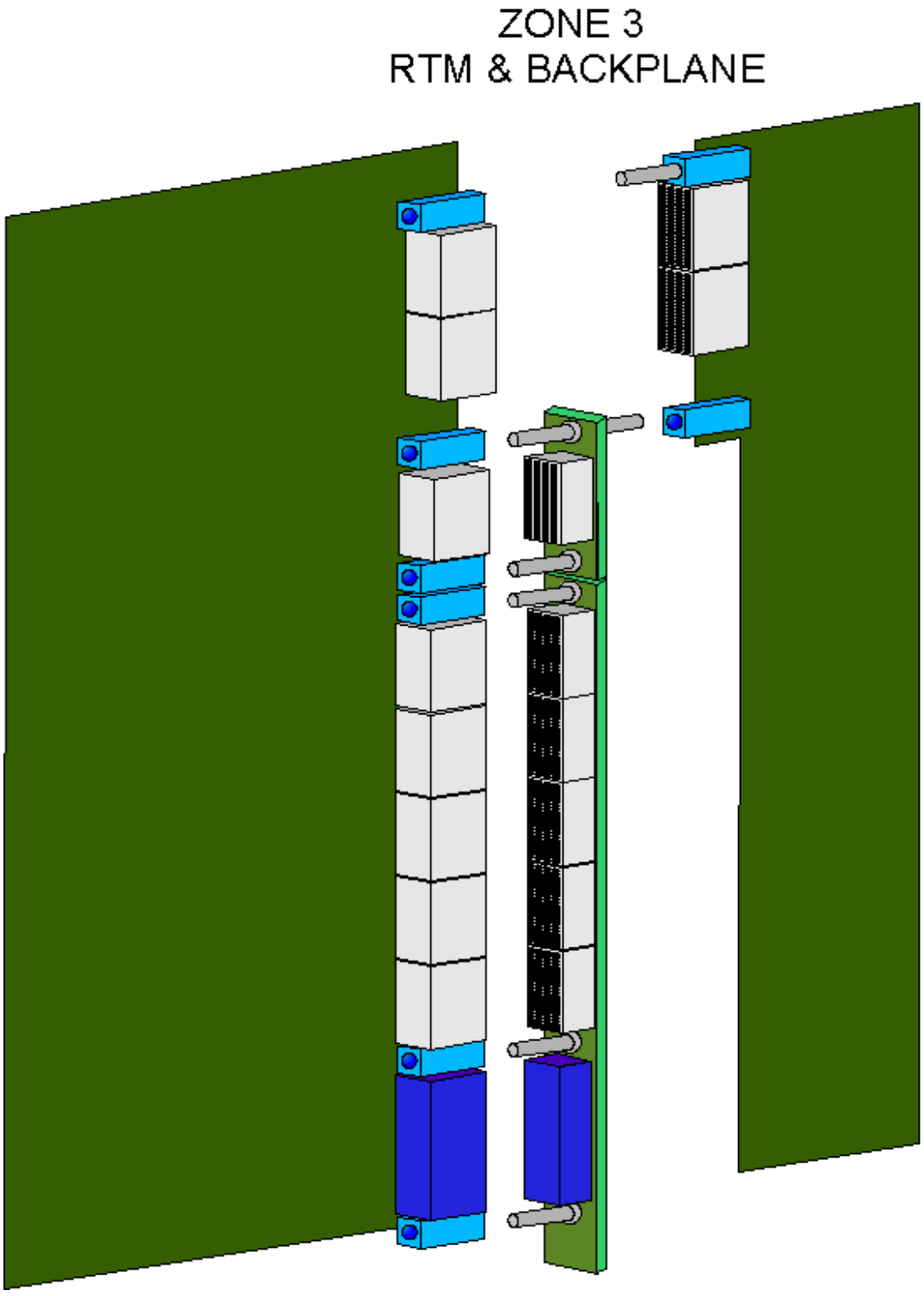

Fig. 3

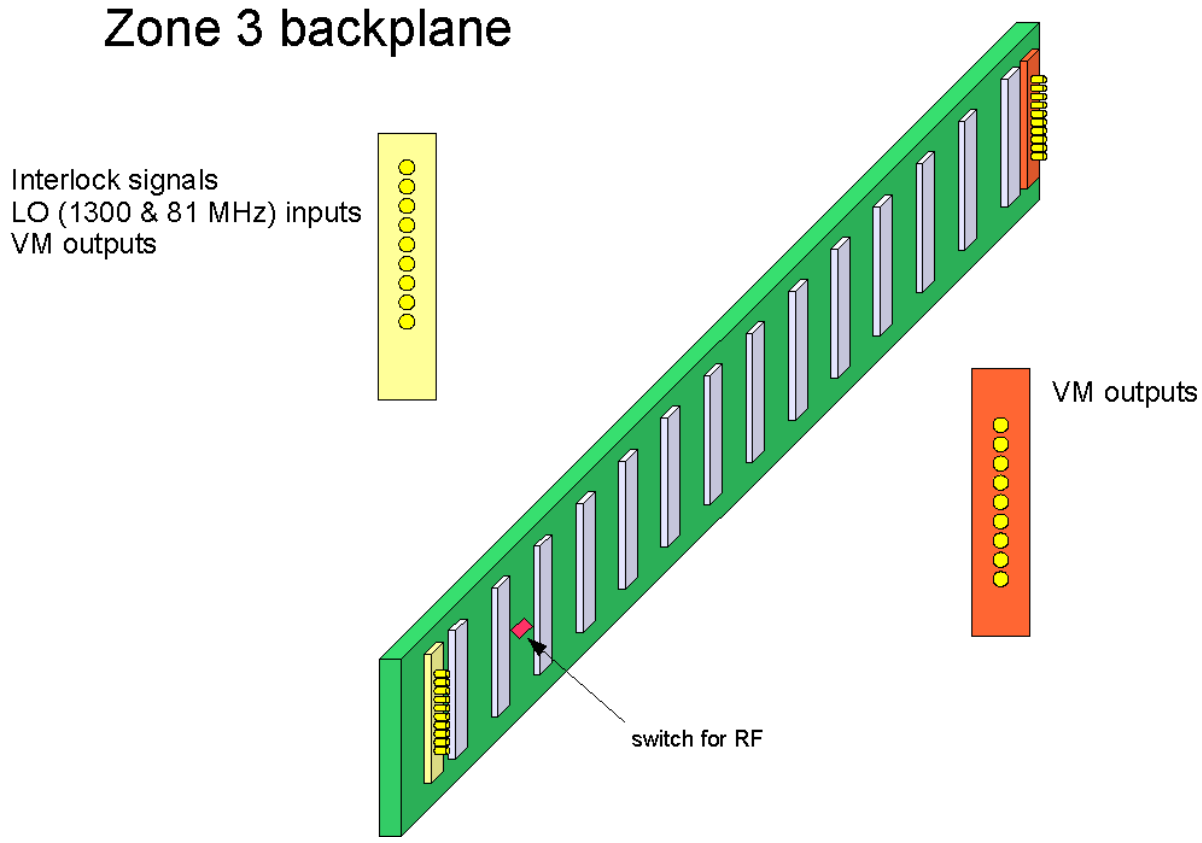
Zone 3 backplane
Interlock signals
LO (1300 & 81 MHz) inputs
VM outputs
VM outputs
switch for RF

Fig.

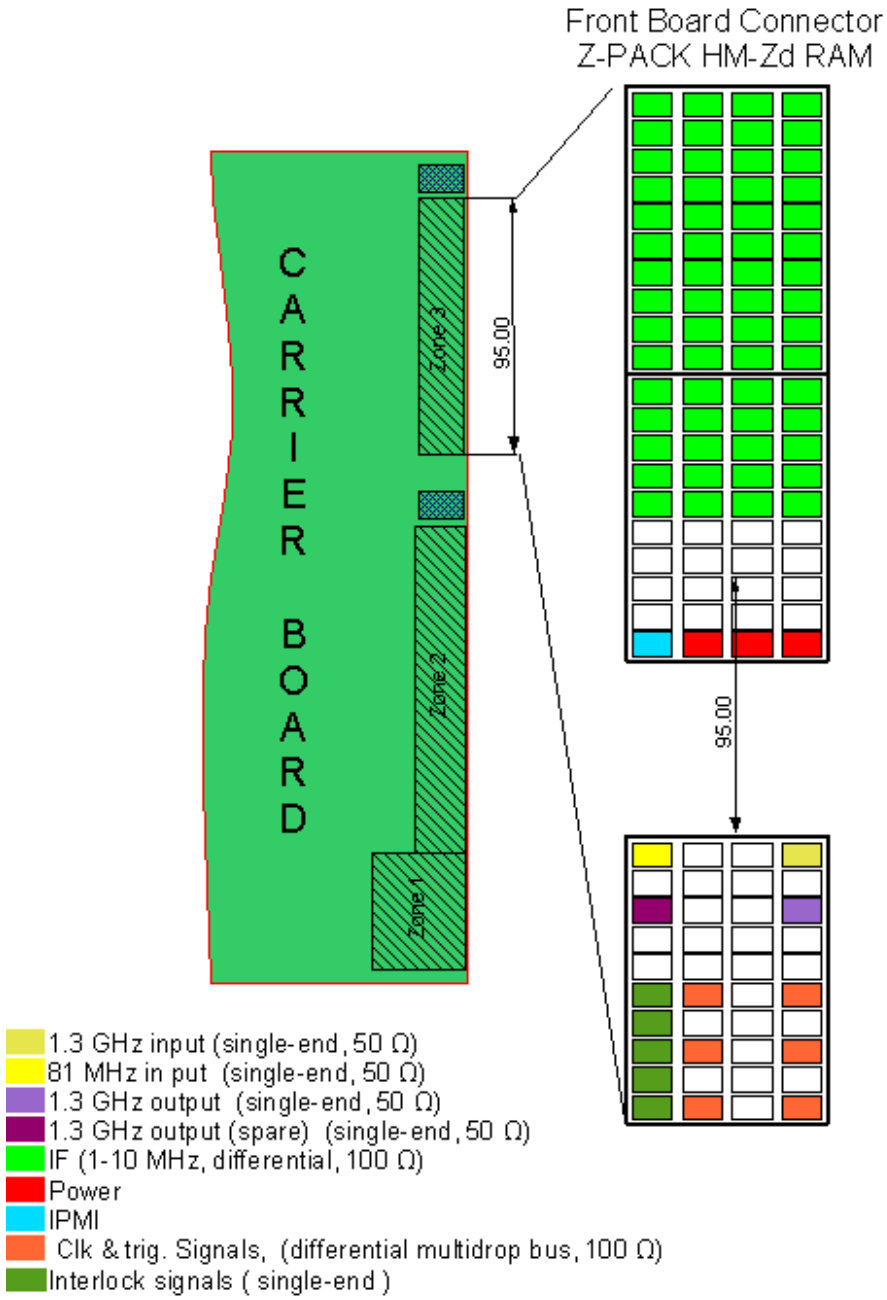
Front Board Connector
Z-PACK HM-Zd RAM
CARRIER BOARD
Zone 3
Zone 2
Zone 1
95.00
95.00
1.3 GHz input (single-end, 50 Ω)
81 MHz in put (single-end, 50 Ω)
1.3 GHz output (single-end, 50 Ω)
1.3 GHz output (spare) (single-end, 50 Ω)
IF (1-10 MHz, differential, 100 Ω)
Power
IPMI
Clk & trig. Signals, (differential multidrop bus, 100 Ω)
Interlock signals (single-end)

Fig. 4