

ASR5500 Capacity Upgrade Card Slot Selection

Contents

[Introduction](#)

[Problem: ASR5500 capacity upgrade card slot selection.](#)

[Solution](#)

Table of Contents

Introduction

This document describes how to select the slot into which the new card on ASR5500 is to be inserted.

Note: These are best practices only and the device will work, even if they aren't followed.

Problem: ASR5500 capacity upgrade card slot selection.

In the event of capacity upgrade of ASR5500 by new card addition, the selection of the exact slot into which the card should be inserted isn't as trivial as it looks like.

Solution

In the official documentation, in the ASR5500 installation guide, it is given a list with recommended card slot assignments (check the official documentation for an up to date table)

Slot	Card Sequence	Requirement
Rear of Chassis		
1	DPC-5 or UDPC-5	Available
2	DPC-3 or UDPC-3	Required for all systems
3	DPC-1 or UDPC-1	Required for all systems
4	DPC-7 or UDPC-7	Available
5	MIO-1 or UMIO-1	Required for all systems

6	MIO-2 or UMIO-2	Required for all systems
7	DPC-8 or UDPC-8	Available
8	DPC-2 or UDPC-2	Required for all systems
9	DPC-4 or UDPC-4	Required for all systems
10	DPC-6 or UDPC-6	Available
Front of Chassis		
11	SSC-2	Required for all systems
12	SSC-1	Required for all systems
13	FSC-6	Available
14	FSC-4	Required for all systems
15	FSC-2	Required for all systems
16	FSC-3	Required for all systems
17	FSC-1	Required for all systems
18	FSC-5	Available
19	Reserved	
20	Reserved	

Those assignments are based on the multiple power planes sourcing power to the card slots.

When you choose a slot to insert a new card, it is recommended to follow the same principle, to ensure equal power load among all power planes.

There are 4 power planes that supply power to various ASR5500 chassis components. The table below summarizes the connections between the power planes and card slots.

Card Type	Slot	Plane 1	Plane 2	Plane 3	Plane 4
Rear Cards					
DPC or UDPC, DPC2	1	—	—	—	Yes
DPC or UDPC, DPC2 or UDPC2	2	—	—	—	Yes
DPC or UDPC, DPC2 or UDPC2	3	—	—	—	Yes
DPC or UDPC, DPC2 or UDPC2	4	—	Yes	—	—
MIO or UMIO	5	—	Yes	—	—
MIO or UMIO	6	—	—	Yes	—
DPC or UDPC, DPC2 or UDPC2	7	—	—	Yes	—
DPC or UDPC, DPC2 or UDPC2	8	Yes	—	—	—
DPC or UDPC, DPC2 or UDPC2	9	Yes	—	—	—
DPC or UDPC, DPC2 or UDPC2	10	Yes	—	—	—
Front Cards					
SSC	11	—	Yes	—	—
SSC	12	—	Yes	—	—
FSC	13	Yes	—	—	—
FSC	14	—	—	Yes	—
FSC	15	—	—	Yes	—
FSC	16	—	Yes	—	—
FSC	17	—	Yes	—	—
FSC	18	—	—	—	Yes
Reserved	19	—	—	Yes	—
Reserved	20	—	—	Yes	—

Fan Trays					
Upper	Top	—	—	Yes	—
Lower	Bottom	—	Yes	—	—

This table summarizes the maximum power requirements for various chassis components

Cards	Maximum power
FSC	150 watts
SSC	10 watts
MIO or UMIO	650 watts
DPC or UDPC	630 watts
DPC2 or UDPC2	760 watts
Fan Tray Unit	
Front	60 watts each (2 per chassis)
Rear	940 watts each (2 per chassis)

Note: There are 4 fan tray units: Lower Rear Fan Tray, Upper Rear Fan Tray, Lower Front Fan Tray, Upper Front Fan Tray.

Based on the above list of tables we can make the calculations to determine into which slot to insert the next card.

In a ASR5500 deployment where the cards are arranged as per official recommendations, the power load on each power plane is as follows (assuming UDPC cards are used):

Plane 1: UDPC8+ UDPC9 = **1260W**

Plane 2: MIO5+ SSC11+ SSC12+ FSC16+ FSC17+ Lower Fan Tray Rear+ Lower Fan Tray Front =**1970 W**

Plane 3: MIO6+FSC14+FSC15+Upper Fan Tray Rear + Upper Fan Tray Front = **1950 W**

Plane 4:UDPC12+ UDPC3 = **1260 W**

It is clearly visible that the power load on the planes 1 and 4 is lower, so it makes sense to insert new UDPC cards in one of free slots connected to Plane 1 or Plane 2, i.e. slot 10 or 1.

In this case, the power distribution will be almost equal over all planes

Plane 1: UDPC8+ UDPC9 + UDPC 10= **1890W**

Plane 2: MIO5+ SSC11+ SSC12+ FSC16+ FSC17+ Lower Fan Tray Rear+ Lower Fan Tray Front
= **1970 W**

Plane 3: MIO6+FSC14+FSC15+Upper Fan Tray Rear + Upper Fan Tray Front = **1950 W**

Plane 4:UDPC2 + UDPC3 + UDPC 1 = **1890 W**

Same calculations applies for other cards (FSC)