

# How to calculate the amount of timeslots you may terminate into the user cards on an IMACS

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## Scope

This document pertains to the following products: IMACS 600, 800 and 900.

## Introduction

Correctly configuring the timeslots requires some knowledge of how the cards in the IMACS interface with the internal busses of the IMACS. Some cards have restrictions and/or special features that can limit or expand the internal busses that the cards can access thereby increasing, or decreasing the total available bandwidth.

This document is designed to help you determine the maximum available to you based on the cards in your system.

## Requirements

### Hardware:

- CPU Cards, E&M, FXS, FXO, WAN Dual, SRU, FRAD
- All IMACS Chassis

## Configuration Steps

### 1. Determining the amount of timeslots

The answer is not a simple one, as not all User Cards are created alike nor are all CPUs. The following explanation will help you to configure solutions that follow the rules.

There are four user card buses, the A, B, C & D buses. Each bus carries 32 64K timeslots of traffic to and from User Cards. Two timeslots on the A bus are used for intra-unit signaling and are not available for User Card traffic.

The 8800 Bus Connect CPU (non-redundant) can access only the A & B User buses. Therefore, the maximum bandwidth available to User Cards when using the 8800 CPU is:

$$(2 * 32) - 2 \text{ timeslots} = 62 \text{ timeslots}$$

The 8804 Bus Connect CPU/Redundant Capable can access all four buses, but there are limitations on which user buses can be connected to which WAN cards. In Bus Connect (8800 or 8804 CPU) systems, the WAN card in slot W1 is "connected" to user buses A &

B. In Bus Connect Systems using the 8804 and having a second active WAN card, the WAN card in slot W3 is “connected” to user buses C & D.

Now, why do we care which user buses connect to which WAN cards? Remember, we said that all User Cards were not the same? Well, some User Cards have the capability to place traffic onto user buses A & B only. The list below shows which cards are limited to A & B bus only.

8-port, 2 wire E&M/TO	8108
4-port, 4 wire E&M/TO	8115
8-port, 4 wire E&M/TO	8119
4-port, 2 wire FXS/FXSDN/PLAR/DPO-900 Ohm	8124
4-port, 2 wire FXS/FXSDN/PLAR/DPO-600 Ohm	8125
8-port, 2 wire FXS/FXSDN/PLAR/DPO-900 Ohm	8128
8-port, 2 wire FXS/FXSDN/PLAR/DPO-600 Ohm	8129
4-port, 2 wire FXO/FXODN/MRD/DPT-900 Ohm	8134
4-port, 2 wire FXO/FXODN/MRD/DPT-600 Ohm	8135
8-port, 2 wire FXO/FXODN/MRD/DPT-900 Ohm	8138
8-port, 2 wire FXO/FXODN/MRD/DPT-600 Ohm	8139
2-port, V.35 super-rate data	8212
10-port, RS232C sync/async sub-rate data	8220
8-port, sub-rate B7R IP Concentrator Card	8228
8-port, sub-rate FRAD	8230
5-port, OCU-DP (expandable)	8247
4-port, OCU-DP child card for 8247	845

**Table 1**

Note that all voice cards are limited to A & B buses only. That is why IMACS supports only 62 voice channels. In addition, there are some data cars in the above list, which are A & B bus only cards. In no case can the total number of timeslots routed to these cards exceed 62 timeslots. Additionally, when used with the 8804 CPU, ports on those cards can be routed only to the first active Wan (W1).

In Cross Connect Systems (8801 or 8802 CPUs), user buses are not permanently “connected” to WAN cards, therefore any user card can be routed to any WAN card. The restrictions with Cross Connect Systems for bandwidth to user cards are: 1) the total bandwidth to all user cards cannot exceed 126 timeslots, and 2) the total bandwidth to all user cards listed in Table 1 cannot exceed 62 timeslots.

## Troubleshooting

The IMACS has numerous internal troubleshooting and diagnostics aids available. Please consult the IMACS Reference Guide for further information