# Digidesign MIX systems and Waves Plug-Ins

Introduction

As you are probably aware, there are different types of DSP chips available on the new Digidesign MIX systems. The purpose of this document is to outline which plug-ins can be used on which chips and why a plug-in may report that there is not enough DSP when it appears that chips are open.

Chip Types and their uses

On the MIX core card there are 6 different DSP chips. Figure 1 is a screenshot from Allocator and shows these chips.
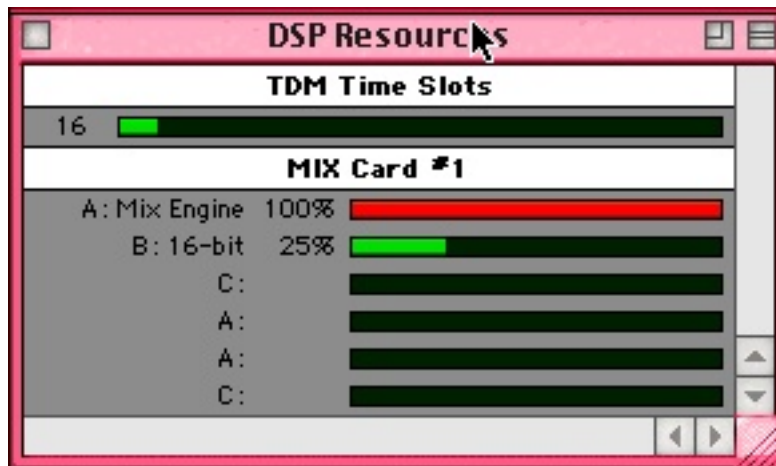
As you can see, the layout is as follows:

Chip Type A – Pro Tools uses this for the Mix Engine.
Chip Type B – The mixer uses this chip for 16 or 24 bit mixer plug-in.
Chip Type C – Available for Plug-ins
Chip Type A – Available for Plug-ins
Chip Type A – Available for Plug-ins
Chip Type C – Available for Plug-ins

Important note: This is with a single MIX card using the 32-voice engine. If you choose to use the 64-voice engine, an additional A chip would be used. Additional MIX farms would have the additional A chip available for plug-ins. Also, you may not see the chip type designations as in the example in your version of Allocator. Just remember the chip type layout.

Waves Plug-ins and their required chip types

Why is all of this important? Because different Waves plug-ins require different types of DSP chips. Therefore, even though chips are open, you might not be able to insert different type of plug-ins. The following is a list of the chip requirements for the various Waves plug-ins.

Plug-In	Chip A	Chip C
AudioTrack	X	
C1 C/G	X	
C1 comp/sc	X	
C1 compressor	X	X
C1 Gate	X	X
C4	X	
De-Esser	X	
DLA	X	
IDR	X	X
MaxxBass	X	X
MetaFlanger	X	
MondoMod	X	
PAZ	X	
PS22	X	X
Q10	X	X
Renaissance Compressor	X	
Renaissance EQ	X	
Super Tap with Modulation	X	
SuperTap 6second		X
TrueVerb	X	
UltraPitch	X	

As you can see, the majority of Waves processes require the A-chip. If you are trying to save DSP power, try using a Q10 in place of the Renaissance EQ or a C1 compressor in place of the Renaissance. This will leave more A-chip DSP available for other A-only processes. And even if these (the Q10 or the C1 comp) plug-ins are placed on an A-chip, they can be shuffled to a C chip if another plug-in requires A.

Chip RAM usage and RAM types

To further complicate things, Pro Tools can report insufficient DSP even when it appears in Allocator that enough DSP is available. This is because some plug-ins require a portion of RAM as well as processor cycles. Allocator only displays processor usage and not RAM usage. To be able to insert a plug-in, the DSP must have both the required DSP and required RAM.

The technical bit about RAM and the MIX DSPs:

A chips have a type of RAM called SRAM. This is low latency sample RAM needed for the large share of Waves processes. SRAM does not, however, provide for longer delays or reverbs.

C chips have DRAM. This type of RAM does not have the low latency of SRAM. Instead, it is used for long delays and reverbs where a lot of time to buffer is necessary. Notice that the only Waves plug-ins that requires a C chip is the 6 second SuperTap.

All in all, the MIX cards represent a step forward in terms of processing power. If you keep these guidelines and limitations in mind, the MIX cards will provide a great deal of processing power and flexibility.

If you have further question about this or other technical issues, you can contact our technical suppot at:

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