Thermionic Valve Analogue Stages for Digital Audio

1. Introduction

Before continuing with this Article the august reader is advised to make herself or himself comfortable with the underlying principles of Digital Audio Formats and the inherent limitations these impose. Especially the most popular CD Audio Format (FC-3852) which is a 16-bit pulse-amplitude modulation with a sample rate of 44.1kHz and a bandwidth from 3kHz to 20kHz. A CD-Player or DAC (Digital-to-Analogue Converter) uses a digital filter to remove the high-frequency noise before analogue circuitry is used to convert the signal to an analogue signal. This conversion can be done in a variety of ways, including multibit and timeslicing digital-to-analogue conversion. The following sections will focus on the latter, specifically the DAC's used in CD-Players and DAC's used in CD-Players and DAC's used in CD-Players.

2. Multibit Digital To Analogue Converters

In this section we will discuss Multibit DAC's, which are used in the middle to lower price range of CD-Players and DAC's. The concept is to quantize the signal into a discrete number of levels (e.g., 4 or 6). This allows for a high degree of accuracy, as the errors are spread out over a larger range. However, this also means that the DAC's are more susceptible to RF Noise. The best bet perhaps is to start from a Denon (the 825/835 Models and upwards) CDP, a suitable Rotel CDP or the Pioneer PD-S06. Otherwise, the

3. Timeslicing DAC's

In this section we will discuss Timeslicing DAC's, which are used in the high-end of CD-Players and DAC's. The concept is to use a large number of parallel analog amplifiers, each controlled by a digital switch, to create a smooth transition between the levels. This allows for a very high degree of accuracy, as the errors are spread out over a very small range. However, this also means that the DAC's are more susceptible to RF Noise. The best bet perhaps is to start from a Denon (the 825/835 Models and upwards) CDP, a suitable Rotel CDP or the Pioneer PD-S06. Otherwise, the

4. Thermionic Valve Analogue Circuits for Multibit Digital To Analogue Converters

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