

DC5 Configuration

What is Myryad's DC⁵ circuitry and what are its advantages?

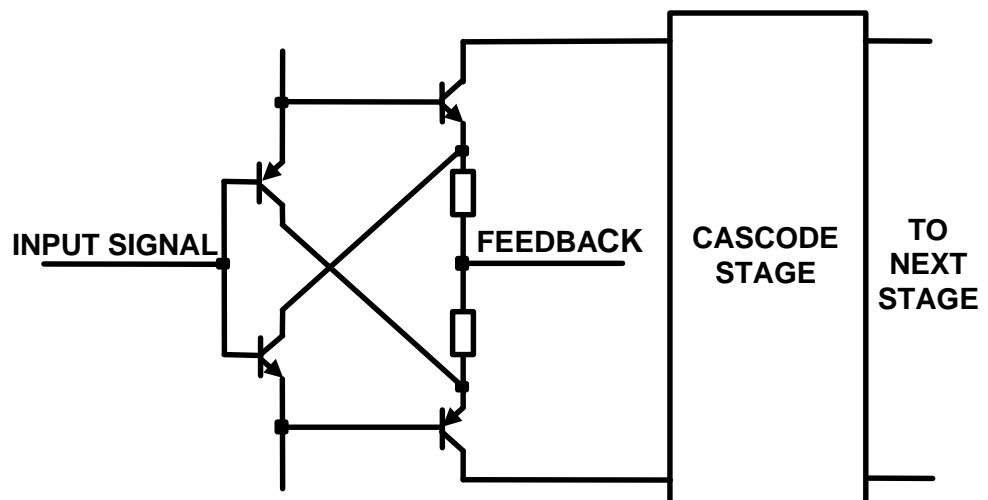
The input stage of most high-quality power amplifiers makes use of the well-known differential amplifier or "long-tailed pair" configuration - or sometimes two of these, one built with NPN transistors and one with PNP. While having a number of advantages, this design approach also has its problems. The full push-pull version is quite complex, each transistor sees the full power supply voltage, the noise figure is not too good and the bandwidth is limited in conventional implementations.

A single transistor, with the input signal taken to its base and the feedback to its emitter can actually do a better job in many respects and has featured in many well respected amplifiers, including the legendary NAD 3020. This configuration is, in fact, about the simplest example of "current-mode" feedback, the technique now used in many high-speed integrated circuits. But of course this very simple implementation has severe limitations.

The unique DC⁵ configuration adopted by **Myryad** is a development from the single transistor concept. Two NPN and two PNP transistors (Double Complementary) are linked together in a cross-coupled configuration, similar to that used in current-mode feedback ICs.

This arrangement offers very low noise, high input impedance, low distortion and, through the use of current-mode feedback, very high speed. It is also particularly well-suited to systems with high closed-loop gain – which makes it perfect for the MI 120 Integrated Amplifier with its "passive" pre-amp.

The final step to **Myryad's** DC⁵ input configuration is the addition of two cascode transistors which operate in common base mode (very fast and very low distortion) and allow the input devices to operate at a controlled low voltage, thus minimizing noise and ensuring stable operation.



1. Basic DC⁵ Configuration