



The main advantage of the switching power supply is greater efficiency because the switching transistor dissipates little power when acting as a switch. Other advantages include smaller size and lighter weight from the elimination of heavy line-frequency transformers, and lower heat generation due to higher efficiency. Disadvantages include greater complexity, the generation of high-amplitude, high-frequency energy that the low-pass filter must block to avoid [electromagnetic interference](#) (EMI), a [ripple voltage](#) at the switching frequency and the [harmonic frequencies](#) thereof.

Very low cost SMPSs may couple electrical switching noise back onto the mains power line, causing interference with A/V equipment connected to the same phase. Non-[power-factor-corrected](#) SMPSs also cause harmonic distortion.

Switched-mode power supply units (PSUs) in domestic products such as [personal computers](#) often have universal inputs, meaning that they can accept power from [mains supplies](#) throughout the world, although a manual voltage range switch may be required. Switch-mode power supplies can tolerate a wide range of [power frequencies](#) and voltages.

In 2006, at an [Intel](#) Developers Forum, Google engineers proposed the use of a single 12 V supply inside PCs, due to the high efficiency of switch mode supplies directly on the [PCB](#).<sup>[31]</sup>

Due to their high volumes [mobile phone chargers](#) have always been particularly cost sensitive. The first chargers were [linear power supplies](#) but they quickly moved to the cost effective ringing choke converter (RCC) SMPS topology, when new levels of efficiency were required. Recently, the demand for even lower no-load power requirements in the application has meant that flyback topology is being used more widely; primary side sensing flyback controllers are also helping to cut the [bill of materials](#) (BOM) by removing secondary-side sensing components such as [optocouplers](#).<sup>[citation needed]</sup>

Switched-mode power supplies are used for DC to DC conversion as well. In automobiles where heavy vehicles use a nominal 24 V<sub>DC</sub> cranking supply, 12 volts for accessories may be furnished through a DC/DC switch-mode supply. This has the advantage over tapping the battery at the 12 volt position that all the 12 Volt load is evenly divided over all cells of the 24 volt battery. In industrial settings such as telecommunications racks, bulk power may be distributed at a low DC voltage (from a battery backup system, for example) and individual equipment items will have DC/DC switched-mode converters to supply whatever voltages are needed.