

TU10 9-Track 1/2 Inch Tape Drive

The TU10 tape drive stores data at 800 bits per inch on 1/2" tape reels up to 2400 feet long. A reel of tape can store up to 21 megabytes of data. The tape drive moves the tape at 45 inches per second when reading or writing so processing a full reel will take at least 10.6 minutes. The transfer rate is 36,000 bytes per second. It can rewind the tape at 150 inches per second so a full rewind is only 3 minutes. The drive weighs 150 pounds and draws 700 watts. Drive and controller cost \$10,745 in 1974.

This drive uses vacuum columns to buffer the tape motion. The capstan which moves the tape over the head can accelerate the tape up to speed in less than 8 milliseconds but the big tape reels take much longer. The loop of tape in the vacuum column will grow or shrink until the capstan and reel feed rates match. The drive uses vacuum switches to sense where the tape is and either turns on the reel motor or the motor brake. The quick acceleration of the tape allows it to start and stop in the gap between records so it doesn't need to rewind part of the tape each time it stops like the DECtape does.

This drive was manufactured in 1973 and was used on Penn's Wharton School KI10 until around 1983. I got it in 2007 from the son of a former DEC employee who had worked on it when it was in use. I just finished restoring it sufficiently for display. It's still a little temperamental and needs some cosmetic work.

This type of tape drive was normally used for exchange of data with larger systems and for capturing or processing large amounts of data. It was common to use a PDP-8 to control equipment capturing the data. The data may be processed by the PDP-8 or transferred to a larger computer which is more capable of processing large amounts of data.

