Technology 2004
Paper Abstract

Name: Brian Cox

Position: Member of Technical Staff

Affiliation: Jet Propulsion Laboratory/ California Institute of Technology

Address: MS 156-205
4800 Oak Grove Drive
Pasadena, CA

Phone   818-354-0671   **Fax Number 818-393-4494**

Gov't Agency/Lab The Subject Technology Was Developed By/For:
Jet Propulsion Laboratory/NASA

Contract No.: NAS7-918

Paper Title: Engineering Estimation Programs

Category: CAD/CAE/CASE and Electronics

Description:

A collection of programs have been written to aid in the development of electronic designs. The use of these programs greatly reduces the uncertainties early in the design phase as will as aiding during the production phase. All of the programs operate on DOS based machines. The programs are written in a pattern matching language called AWK and can be easily ported to UNIX machines.

Some of these programs work in conjunction with CAD programs to aid in the estimation of many critical design parameters that are normally labor intensive. This collection of programs allows for; cost estimation, circuit power estimation and physical size estimation.

Other programs work in conjunction with CAD programs to aid in the design process. These programs check for signal path loading, locating potential hot spots on a circuit board, performing autorouting of wirewrapped boards and designing complex cable harnesses. One program will generate a listing of circuit power and ground connection that can be imported into the schematic capture program.

Another set of programs does not require input from CAD programs. These programs will calculate the voltage drop across a set of cables as well as traces on a printed circuit board. There is a program to calculate the center of gravity of an electronic cabinet as well as a program that will estimate the thickness and bending radius of a cable design.   ,