Using formal methods to generate a program

Mathematical description of the problem

Refinement steps

Proof of correctness

Executable code
or hardware design

Examples

Hardware design (VHDL, Verilog)

✓ Used by semi-conductor companies such as Intel

Critical embedded software (B/Z, Lustre/Esterel)

✓ Urban Transportation
(METEOR Metro Line 14 in Paris by Alstom)

✓ Rail transportation (Eurostar)

✓ Aeronautic (Airbus, Eurocopter, Dassault)

✓ Nuclear plants (Schneider Electric)