Kumar et al. EJOR (1988)

Limit on number entries into the IL = 20

Average CPU (Alg.1) = 9.65 sec

(Alg.2) = 2.27 sec
810 parts + 62 m/c\(^2\) \rightarrow\) original problem

627 parts \(52\) m/c\(^2\) were bottlenecked

Double row cellular layout

\[ c_1 \rightarrow c_2 \rightarrow c_3 \rightarrow \cdots \]

\[ d_5 \rightarrow c_2 \rightarrow \cdots \rightarrow c_{12} \]

Data Incremental cost of subcontracting parts

Year volume of product parts

Form m/c\(^2\) cost of each bottleneck m/c\(^2\)

"operating each m/c/hr"

Useful life of each m/c

Rate of return (ROR) = 17%

\( B = 10,000,000 \Rightarrow\) unlimited budget

Initial cost \( \Rightarrow 385 \) bot parts showing preference for subcontracting (2)

1 bot part in duplication (1)

Final \( \Rightarrow \) 2nd entry into the IL, but it also the 36th entry into the CL

# of bot parts showing preference for dup m/c\(^2\) in created from 1 to 36

Net savings (2) = \$993,316.02
MT
\[ x = 77.3/100 \]
\[ s = 8.2 \]
\[ \text{high} = 87 \]
\[ \text{low} = 67 \]