IBM ENGINEERING TRAINING PROGRAM

JULY 19 TO AUGUST 6, 1954

POUGHKEEPSIE, NEW YORK

Class Notes & Exams

Rick Dill

(Scanned by Robert Garner, Oct, 2022)
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<th>TIME</th>
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Mr. Mayer - manufacturing 14 Pl. - Mail Adm.

L. L. Palmer - again

10 groups - L. P. Hunter - Research 423
           Byron Phelps - Components 21
           - Advanced Machine Dev
           - FDM
           - Prod. Dev. & Release
           - Prod. Eng.
           - Customer Enq.
           - Defense Contract Enq.
           - E. T. group
           - Project High

Design Graph systm products here - MAP

L. P. Hunter

ms - PhD Old Grad. - check

to gain knowledge - research

to improve or design - development

Solid State Physics
Semiconductors
Ferrites

Blue Sky Work
Ferroelectrics
Fluorescent materials

Business Theory group

Cooperation with other groups

Byron Phelps

Components
Working from research
Working from machine development
Components Applications
Data Transceiver
- 4 cards per minute telegraph
- 11 cards per minute telephone
- 4 channel telephone carrier
SAM - Small Accounting Machine
Serial machine
- Column printing
- Card storage
- etc...

Does all functions, but serially

Transistor version of SAM - not for production

X795 - wooden wheel
- 604 with improvements
- on rental now
- equivalent to 650 mag drum calc.

Check Sorter - feed assorted checks

Single Element typewriter
- prints from single element
- newer, faster, quieter machine

Key driven accounting machine
- more flexible than small mechanical machines

EAM - Bernie Tobin - card handling
- 100, 200, & 400 cards per minute

Magnetic Tape - 407 - Ed Robeide
- to work from 702 & 703 to EAM

Tape project - to improve tape techniques
- higher speeds...

EDPM - linked with Advanced Machine Development
Nat Rochester
EDPM -
Competition with smaller, fast moving company
Mr. Pearson - EDPM Task Force
Job - construction of large machines
75% - commercial, 25% scientific calculators
Both punched cards & magnetic tape used
Tape group - very large
Cards - easily sorted, tape - much faster
Tape must be used with larger more complex numbers
701, 7041 - Scientific calculators, stored program automatic calculators
1949 ENSAC - England
1952
1955

Fixed point & floating point numbers
Can solve any prob. if you must state problem
2. You must be able to state problems
3. You must be within size & speed range
of your machine
702 Commercial general calculator
702 Variable field size machines (no word size limit)
702 Very large input & output facilities
Tape 2 to 2 sorting
703 File maintenance machine - largely accounting machine - does many
processing
Clarence Percell & Nat Rochester -run group
Project High

John Combs

250 people

Very high speed, brute force - vacuum tubes

Emphasis on reliability

Marginal checking, use of elaborate test procedures

Harlan Campbell

Engineering

Release Eng - Dean

Tech Services Group - Stadtler

Electrical Lab - Goetz

EAM Prod Eng - Kline

Specifications

Drafting

Spec Eng

E. T Eng

Standards Eng

MA Eng

Test

Blodgett

Heidt Saller

O'Farrell

Staudt

Riddle

8:15

12:40

1:30
Mr John Hannover
M L Wood

Patent Procedure
ERAD

Ideas - go to your supervisor
then send the idea to ERAD

ERAD is blue sky
Loren Wood, Kenyon Lab.

S. W. Dunwell

Modern Business Requirements

Payroll
Accounting
Sales Analysis
Inventory Control
Production Control
Governmental Applications

Social Security 60,000,000+
cards giving earnings
reports from employers
it is possible to locate records
within a matter of hours

All records kept in Baltimore
many machines involved

Card File - one or more cards for every individual
Name File - file in order by name

Punching cards from employers reports
Sorter - yields current information
Collator - combines history & current to
yield up to date record changes
Verifier checks names & numbers part of
collator
Manual Recording
Verification
Sorting
Preliminary Processing
Accounting Machine
1. Recognizes Groups
2. Accumulates Totals
3. Prints Results
   Punch results also

1. Read Record
2. Logical Operations
   Comparison
   Code Punching
   - balances
3. Arithmetic Functions
4. Printing

Challenge!
Problem!

Original Recording
1. Mark Sensing
2. Character Sensing
3. Data transmitting devices - automatic check
4. Transcribing punched paper tape to cards
5. Tape prepared from typewriter
6. 

7/20

The future - ? - Treasury - for example
Proposed magnetic tape machine with storage tubes

Problem - keeping track of all government checks
275,000,000 checks issued/year
over 1,000,000 cards/day from 10N Washington plant
Check No
Disbursing Officer
Date
Amount up to 8 figures

1. Issued
2. Cashed up to 4 million per day
3. Cleared through banks to Fed. Reserve Bank

   1. Accumulate Totals + Dib. Officer order
   2. Sort in check no. order 110 sorting machines
   3. Search for Stop Pay Orders
   4. Accumulate Dib. Officer total

4. Cards are sent to gen'l accounting office in Washington

   1. After 90 days, sort in D.O. & Check No. Order
   2. Match for missing numbers (97% in)
   3. Look up amount of missing checks and make cards

   checks
   1000 card deck
   collator

   checks
   matched checks
   unm. matched cards

4. Cards are pencil scanned & punched
5. Manually inserted with checks
6. Run through Accounting Machine, total checked with Dib.
Same procedure with tape

1. Read cards & make tape
   a. cards read at 450 cpm
   b. accumulate total
   c. select cards in error check for either detection or non-detection of numeric information
   d. socially number cards (print on cards) and number on tape
   e. make magnetic tape does not contain selected or checks - they come through later

32 col/chart x 200 col/linch = .16" record gap = .75"
check length = .91" 2400' = 28,800" 2 1/4 # instead

Building machine using 510 characters/in

2. Prove magnetic tape
   a. accumulate totals checks all human errors
   b. condense records... to 12 tapes this gives 32 check sequences between gaps
   In all procedures when we utilize a tape, we make new tapes. This may not be the same in the future.

3. Seal on disk, officer & check no.
   1 machine in 20 hours
   Can be cut to five hours in near future

4. Match for stop pay search
5 collect for 90 days & merge
6 look for 2nd list missing numbers accumulate total of
   amounts and count of checks

This job is proposed for the 703

This is one of the most elementary accounting
operations known

703 simpler than 702
Both use CR Storage
702 uses old tube
703 uses new Barrier Grid Tubes

Two machines
Card & Tape $2300 / month
#703 $700 / month

Total renter $60,000 / month

Only about 50% more than present rental.
Present system uses 600 people... New system uses less than 100
Mr. Emmet Murphy
IBM Card & FAM Applications

Date of Birth

Name

Date Hired

Marital Status

Sex

Locality

Education

Mon. #

Dept.

Job Code

How much should I get?

How much would I pay another?

In

4

5