

# DeltaV History

Also My Small Involvement

## Time Line Of Digital Control Systems

# In the Beginning

## Monsanto Chemical performed one the first Digital Process Control Tests.

Monsanto used to be a great Chemical Company, a competitor of Dupont and Dow.

The Year: 1961

The Place: Monsanto Texas City Plant, Texas

The Computer: TRW Computer

I started my computer career with NASA in 1967 as a Co-OP student Programming



# New Computer Design

The Year: 1969

Monsanto St. Louis Development Center

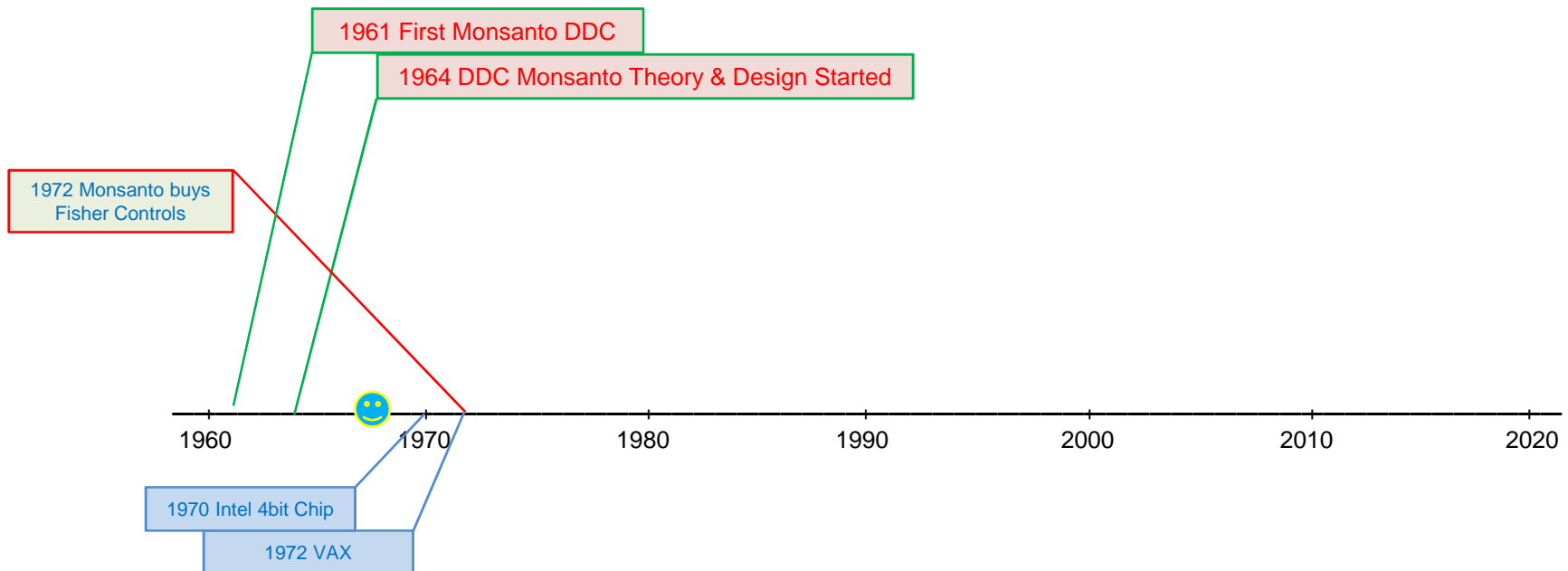
The DDC Computer hardware was designed, built and programmed by Monsanto

Monsanto buys Fisher Valve Company, passes Computer design to them and creates Fisher Controls.

Intel released first 4-bit chips for Military

Vax computers released

I graduated with BSEE with majors in Controls, Computers and Communiation in 1970.



# Direct Digital Control – DDC

The Year: 1977

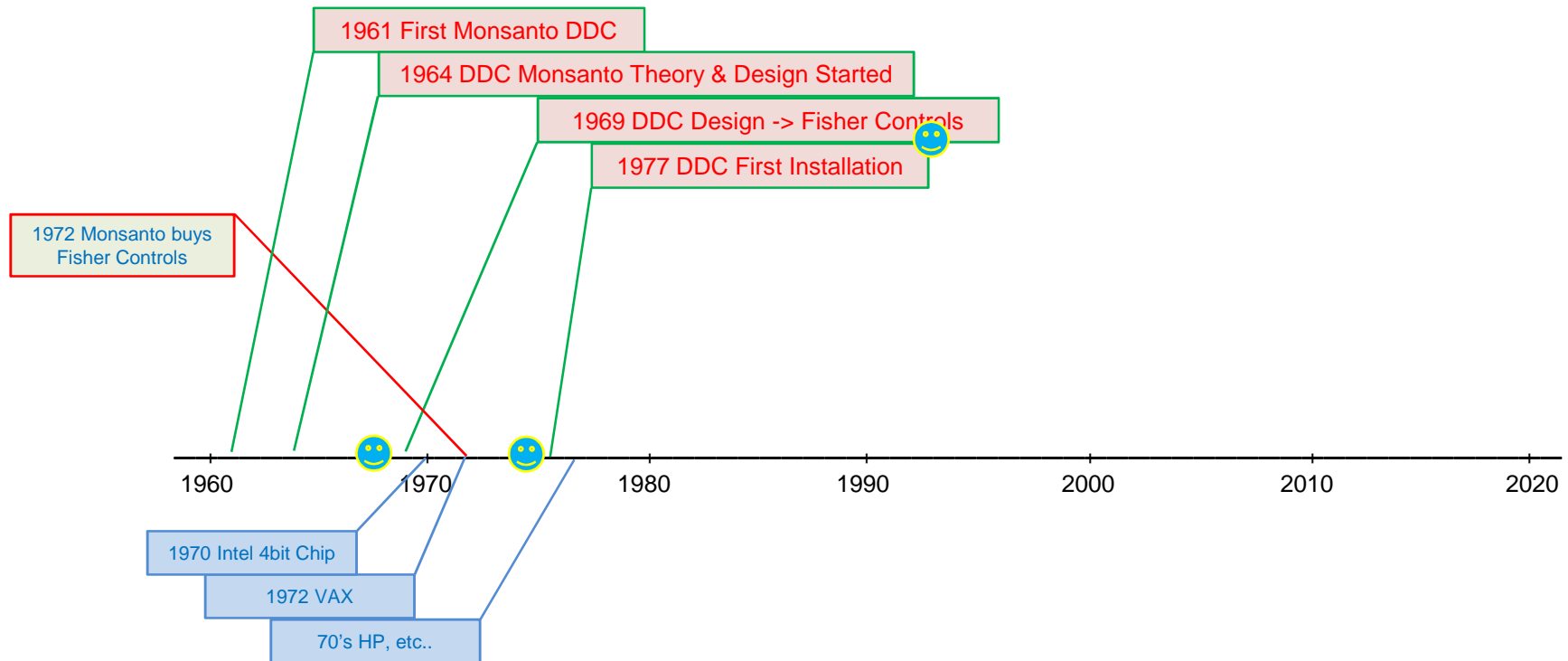
Monsanto Pensacola, Florida Plant

In the late 70's lots of new computer companies emerged: HP, etc...

I started work for Monsanto in 1974 in Pensacola writing code for VAX Process Systems

I installed serial #3 of DDC and made over 600 coding corrections to operating system

I also developed a hardware interface so that DDC could talk to VAX computer  
for reporting and production control.



# IACs, Configurable Controllers and Computing Controllers

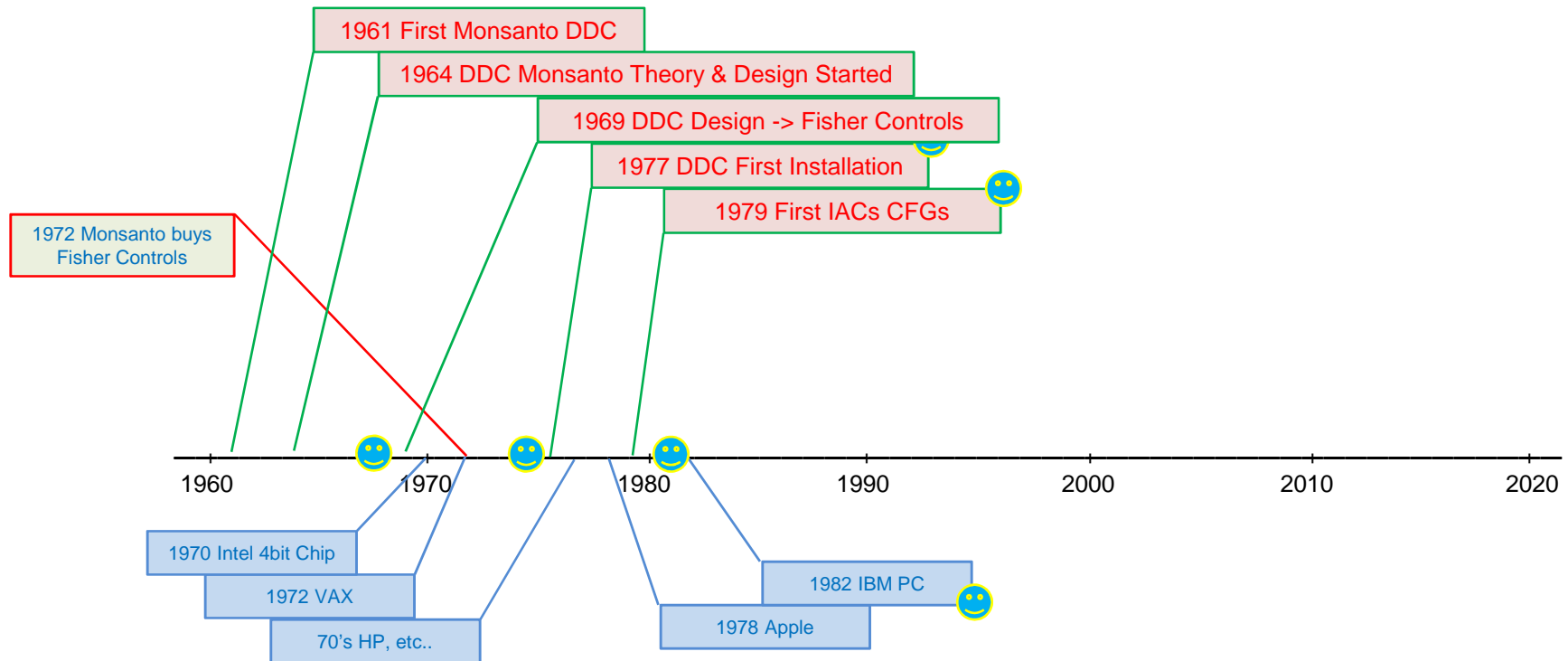
The Year: 1979

Monsanto Pensacola, Florida Plant

Apple Computer in 1978

IBM PC in 1982

I installed and coded the first IACs, CFGs and Computing Controllers



# PRoVOX

The Year: 1985

PRoVOX Version 01 Released

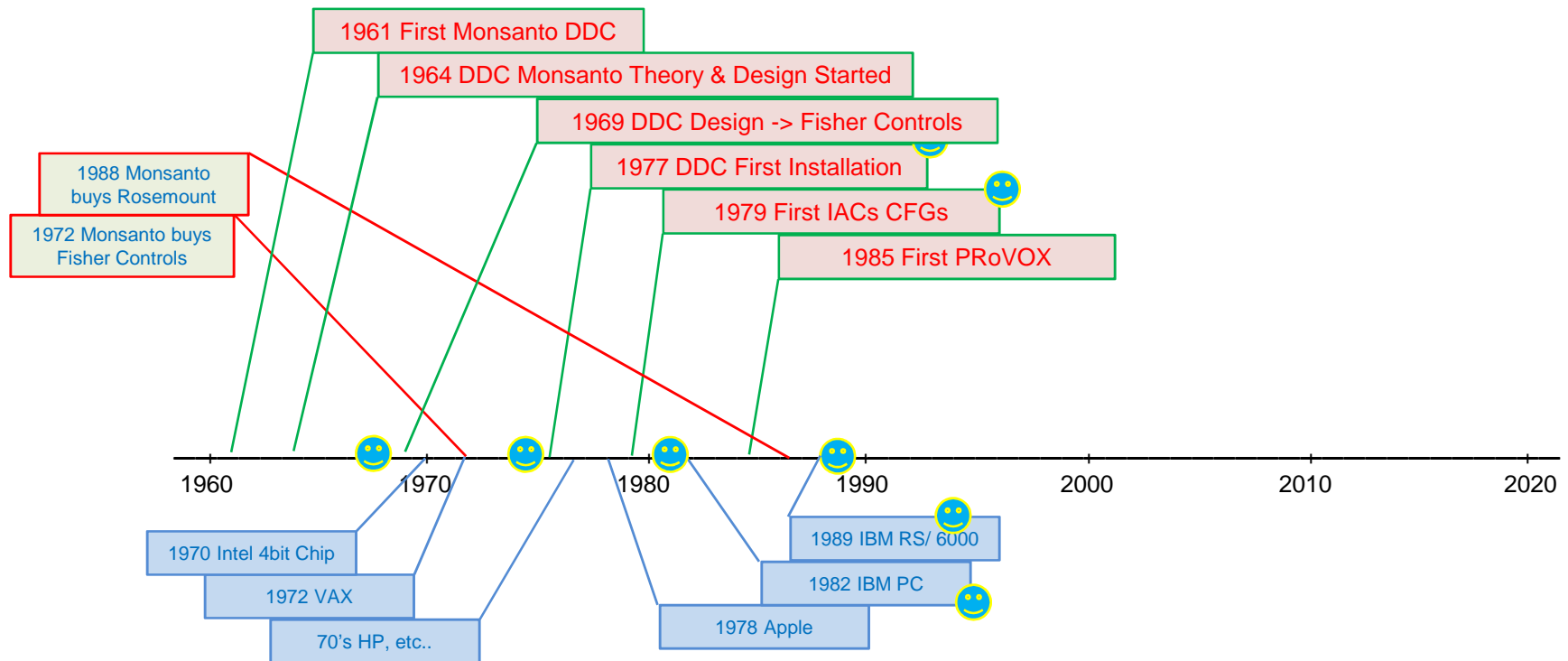
Monsanto buys Rosemount – Now Fisher-Rosemount

IBM release RS/6000 Chips → Power PC Chip used in DV Controller (1989)

I worked on design and testing of Floating Point Chip in RS/6000

I discovered the problems when RS/6000 Benchmark tests failed

I worked on team to layout Power PC Chip from the 14 Chipset of the RS/6000



# DeltaV Design with IBM

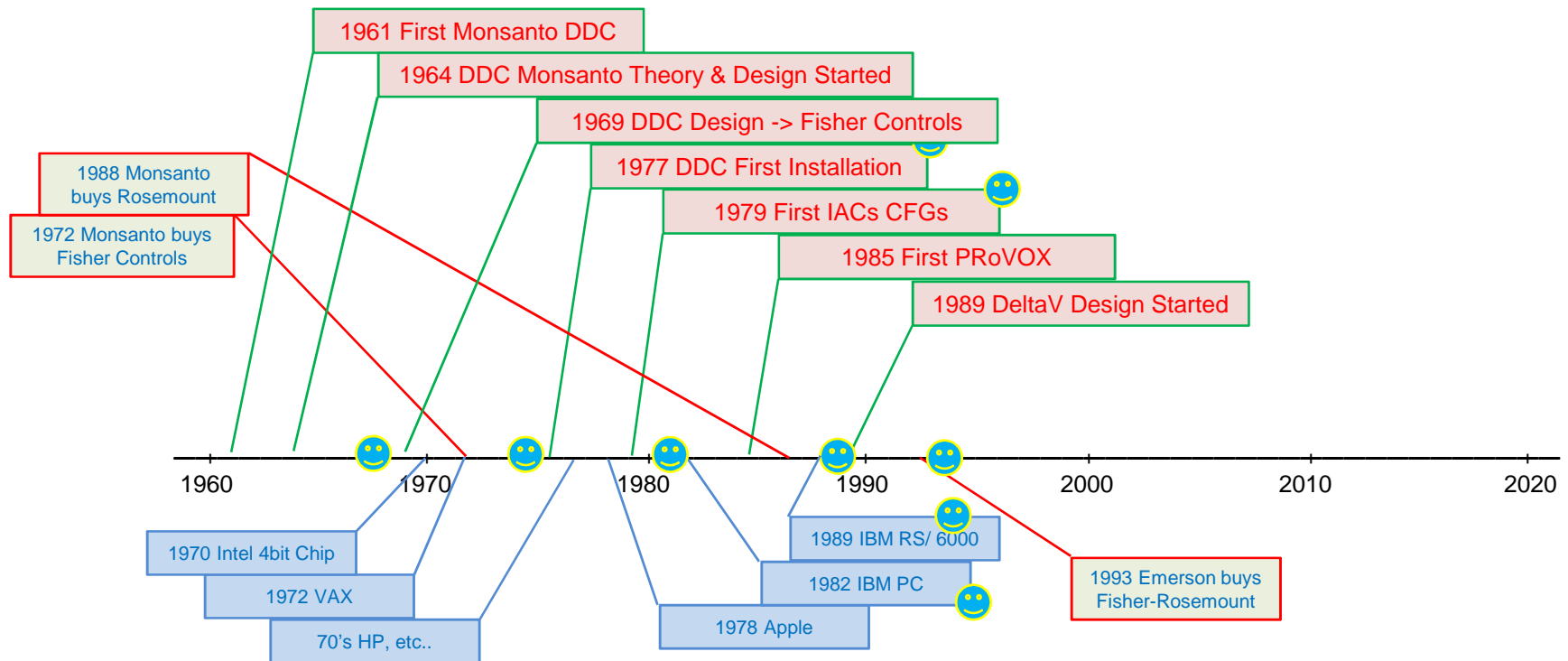
The Year: 1989

DeltaV Design Started with IBM

The design was not going well and Duncan was brought in.

(Rule: It is easier to teach Process Engineers to program than  
to teach programmers about Process Control)

IBM released Power PC Computer Chip (used in DeltaV controllers)

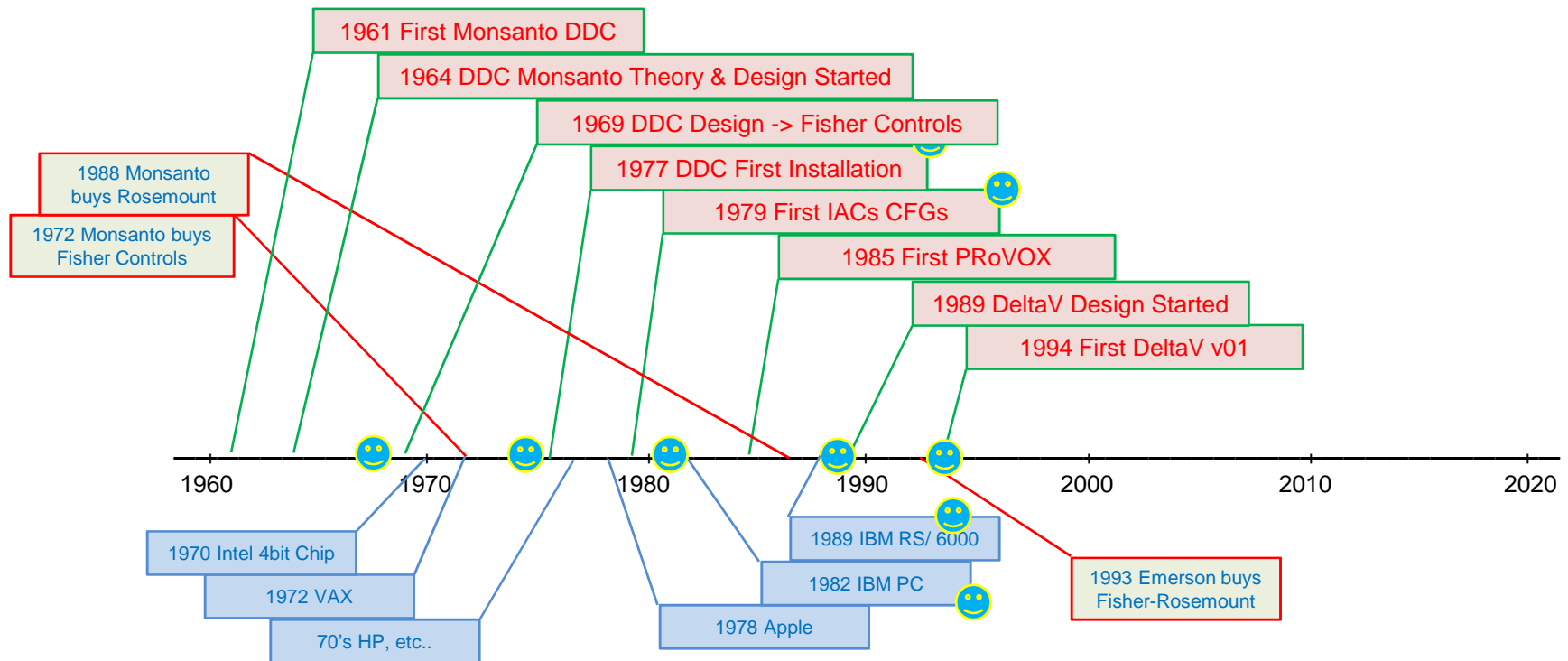


# The Year: 1993

## Emerson buys Fisher-Rosemount

### 1994 - DeltaV Version 01

Beta Testing at Monsanto Decatur Plant  
Credit to David Montgomery at Decatur





# 2000 to Present - Current Status

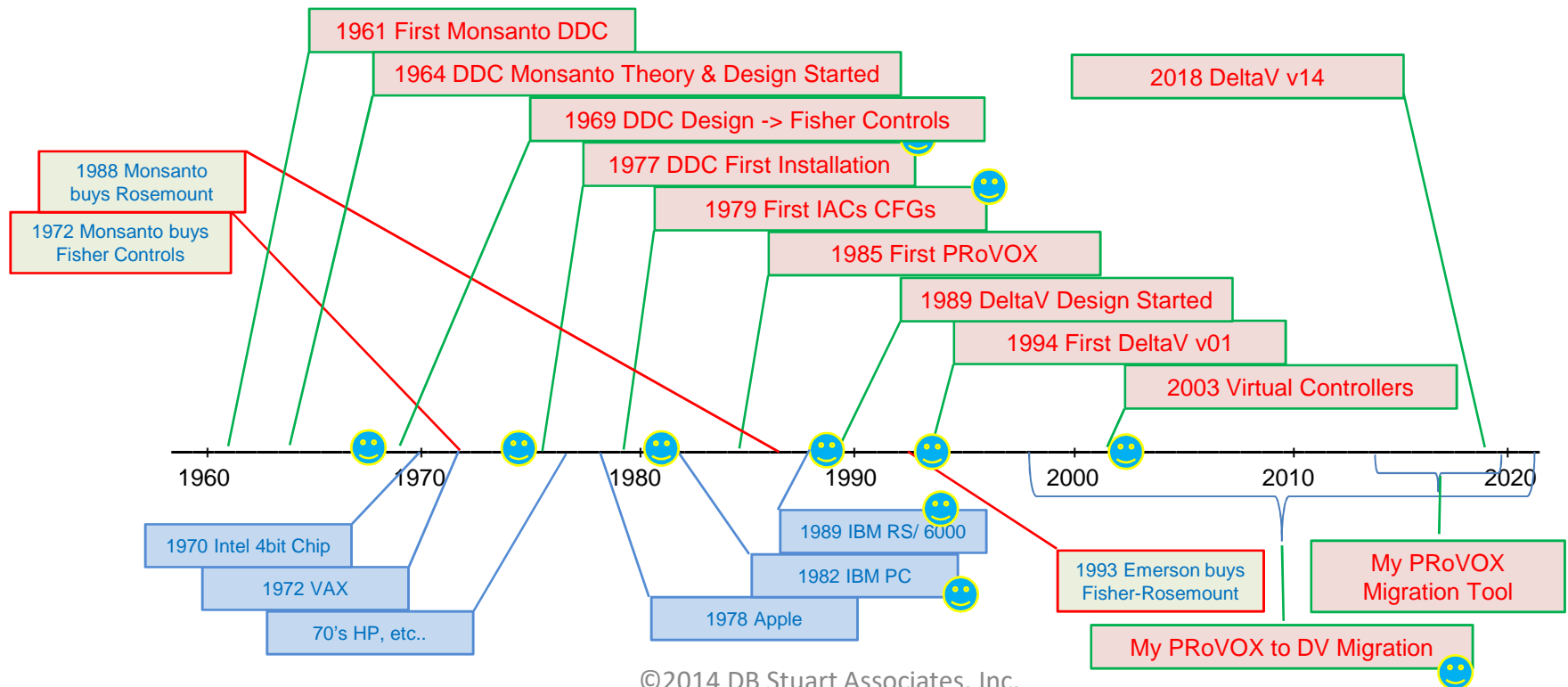
## DeltaV version 14 released

### PRoVOX to DeltaV Migration

In 2003/2004 I helped resolve PRoVOX to DV Interface (PDI later DVOP)

I discovered major problems in original virtual controllers/downloading  
(corrected in DeltaV v06 - 2004)

I worked on the original bulkedit procedures (2003), generating FHX files from Access  
(this was same procedure I developed in 1994 generating PRoVOX CDV files from Dbase)



# 1970 Direct Distributed Control Computer DDC

This slide added  
In response to  
Questions on DDC.

The DDC was a computer built specifically for Supervisory Control of loops and with the capability to drive outputs directly.

The purpose was to control hardware loop controllers mounted in Control rooms.

The operators could manually control loops utilizing Manual, Auto or Output modes. An additional mode of Supervisory was available for the operator to turn control over to the DDC. The DDC could drive the setpoint or output directly of many wall mounted controllers.

The DDC could do cascade control of loops.

The operators could utilize a HMI for access to the DDC.

The hardware design of the computer was originally designed and built by the CED Engineers in Monsanto, St. Louis offices. The software was Basic and developed by several individuals across Monsanto with emphasis from Pensacola Plant Research. Eventually the DDC responsibility was transferred to Fisher's Engineers who has experience with designing hardware for valves. Thus the creation of Fisher Controls.

As noted previously when I installed the first DDC System in Pensacola, I corrected over 600 errors in the control system Basic code. Also since I was programming Vax systems for production information to control rooms, I designed an interface to transfer data from DDC to VAX system.

The conversion to Computing Controller, IAC, CFGs was the evolutionary step in 1979 to moving the wall mounted controllers into cabinets with enhanced HMI displays and more control than just loops. The next evolution was 1985 with HP PRoVUE with PRoFLEX software. The came PRoVOX with EnVOX software. An finally, DeltaV in 1994.