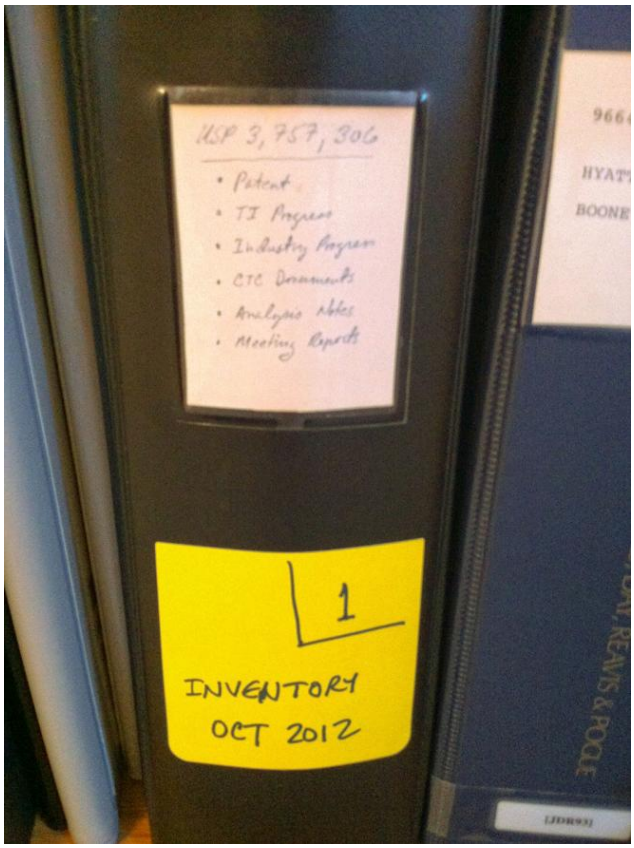
Gary Boone papers inventory, 1967-2014

The following inventory was prepared by Steve Golson, a colleague of Gary Boone and fellow microprocessor designer. Originally these items were located at Gary's home office in Colorado Springs, CO. Steve Golson inventoried the material in October 2012 and May 2013, taking photographs of each item and the contents. During the inventory, if a box appeared to have some relevance to early microprocessor/microcontroller work at Texas Instruments, it was set aside and later donated to the Computer History Museum. Other materials found during the inventory, such as personal financial information and family history items, remained with Boone's family.

Note that this inventory lists only the items that were donated to the Computer History Museum.

Item 1

Binder located on bottom shelf of bookcase. Prior art and notes regarding USP 3,757,306



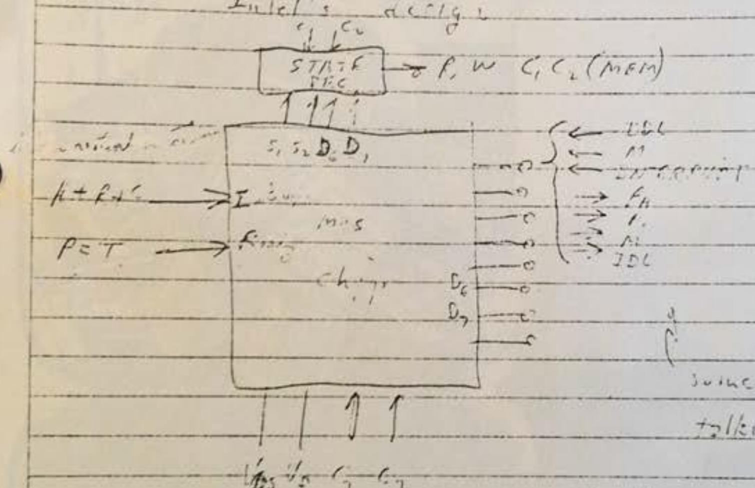
Item 1 cont.

5/27

CTC Review

Meeting on May 26 with CTC. They canceled our design.
They supplied us with Intel's design and want us to do an SAG one chip processor.

Intel's design



some complication in two talking to each other [illegible]

4 Reg's talking to other and at the switch

State Decoder
tells position of switches [illegible]

Look at 3 phase & see how to organize Registers & P-STK in 3 RAM

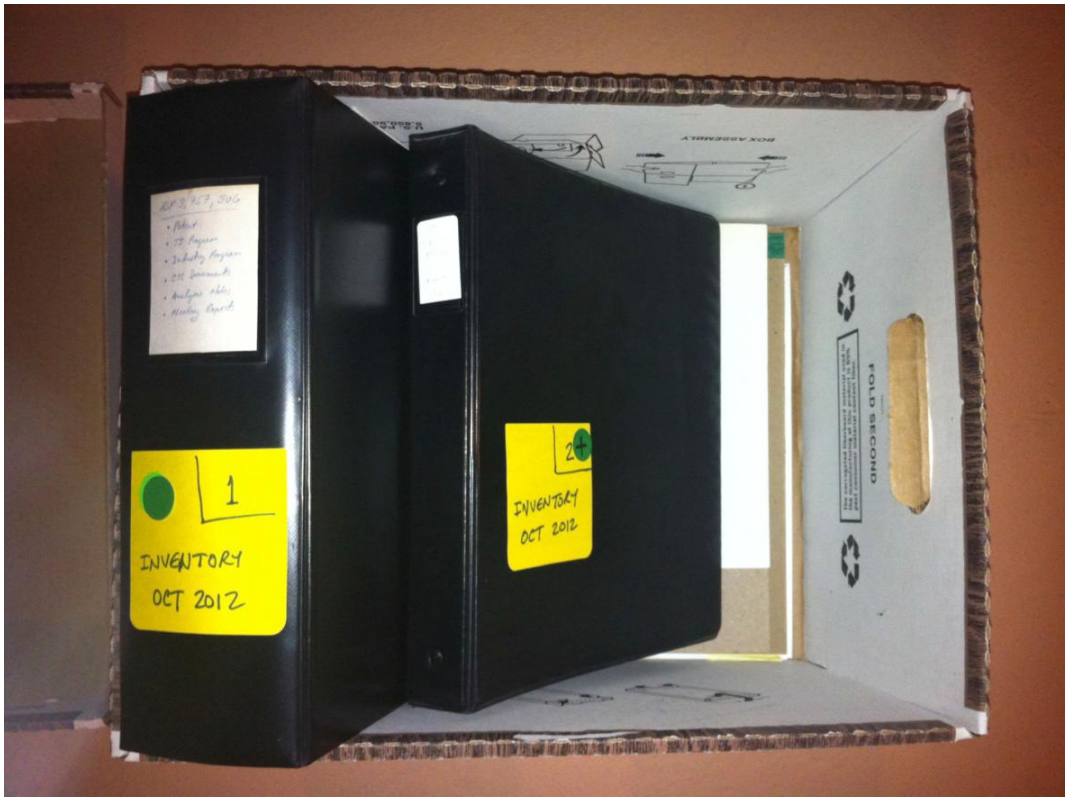
WORK OF DATE

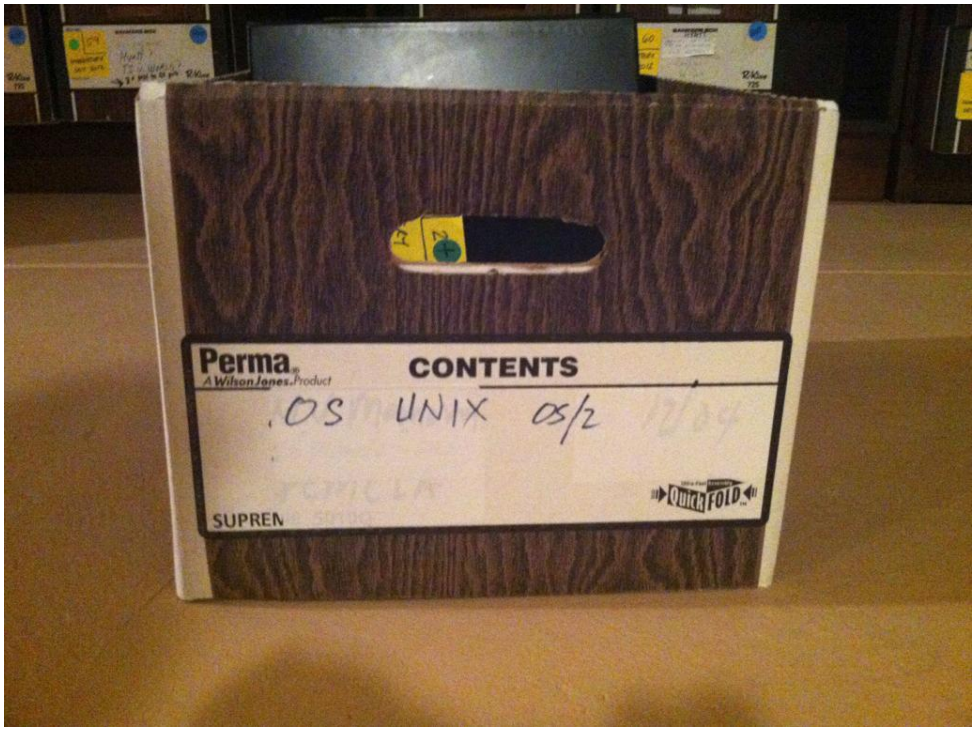
I witness this document and understand its contents
NAME Date
I saw the tests made

I witness this document and understand its contents
NAME Date

Item 1 cont.

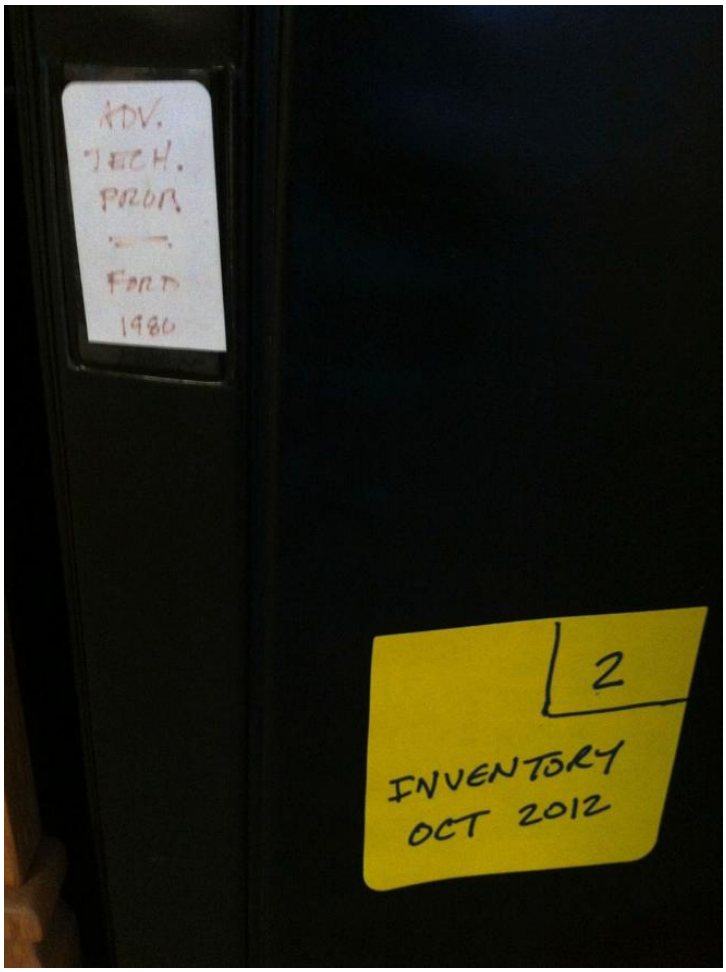
This item was placed in a box along with Item 2.





Item 2

Binder located on bottom shelf of bookcase. Ford Microelectronics material.



This item was placed in a box along with Item 1. See photo above under Item 1.

Item 2 cont.

ADVANCED TECHNOLOGY GROUP
10/17/78 GJB

Summary

- Proposed Advanced Technology organization should have positive effect on both EED costs (variable and warranty) and PED efficiency (program cost and timing)
- Availability of "path of least resistance" technology assistance to Engineering and Manufacturing, and sound technical advice to Chief Engineer and Division Staff will be crucial for the next three to five transitional years.
- There are a number of important functions and interactions which should be considered in staff and budget planning for this group, and this is the purpose of this paper.

Assumptions

- Formation of consolidated Advanced Technology group in first quarter 1979, and concurrent reorganization of PED in three electronic and one electrical engineering groups along the lines of business P+L centers.
- Inclusion of Technical Planning, Electronic Technology Development, and Computer Technology/Applications departments/headcount; and possible inclusion of Component Engineering*.
- Presently operative functions including Designed-In Reliability, Thick Film Investigation, Process and Failure Analysis, Data Base Management, PCB/CAD, Modeling/Simulation, Minicomputer Software, and [Component Specification and Characterization are assumed as baseline responsibilities.

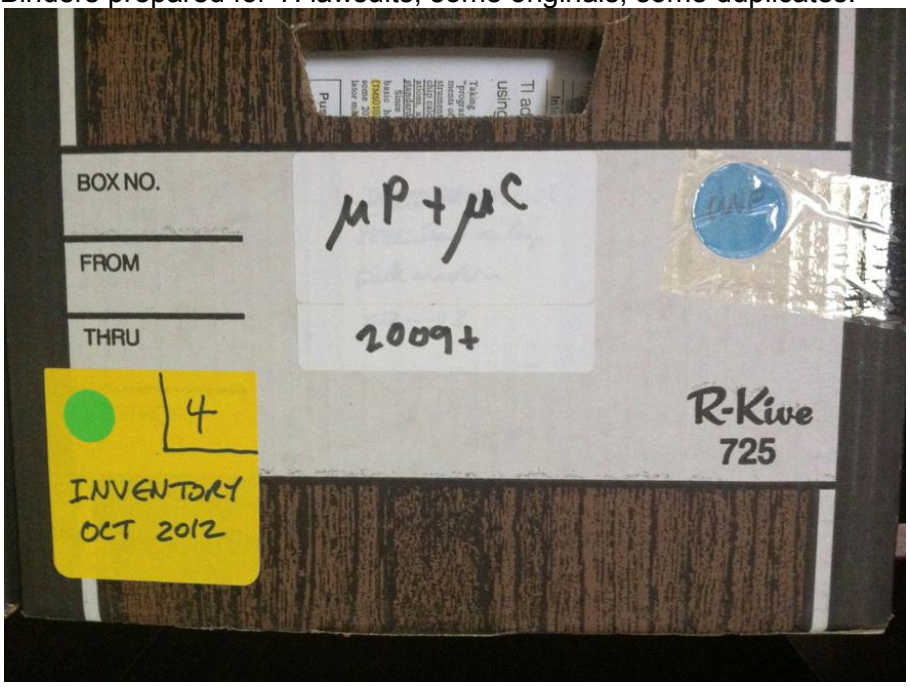
pg 111

Wafer Fab Process Technology (Tab 1)

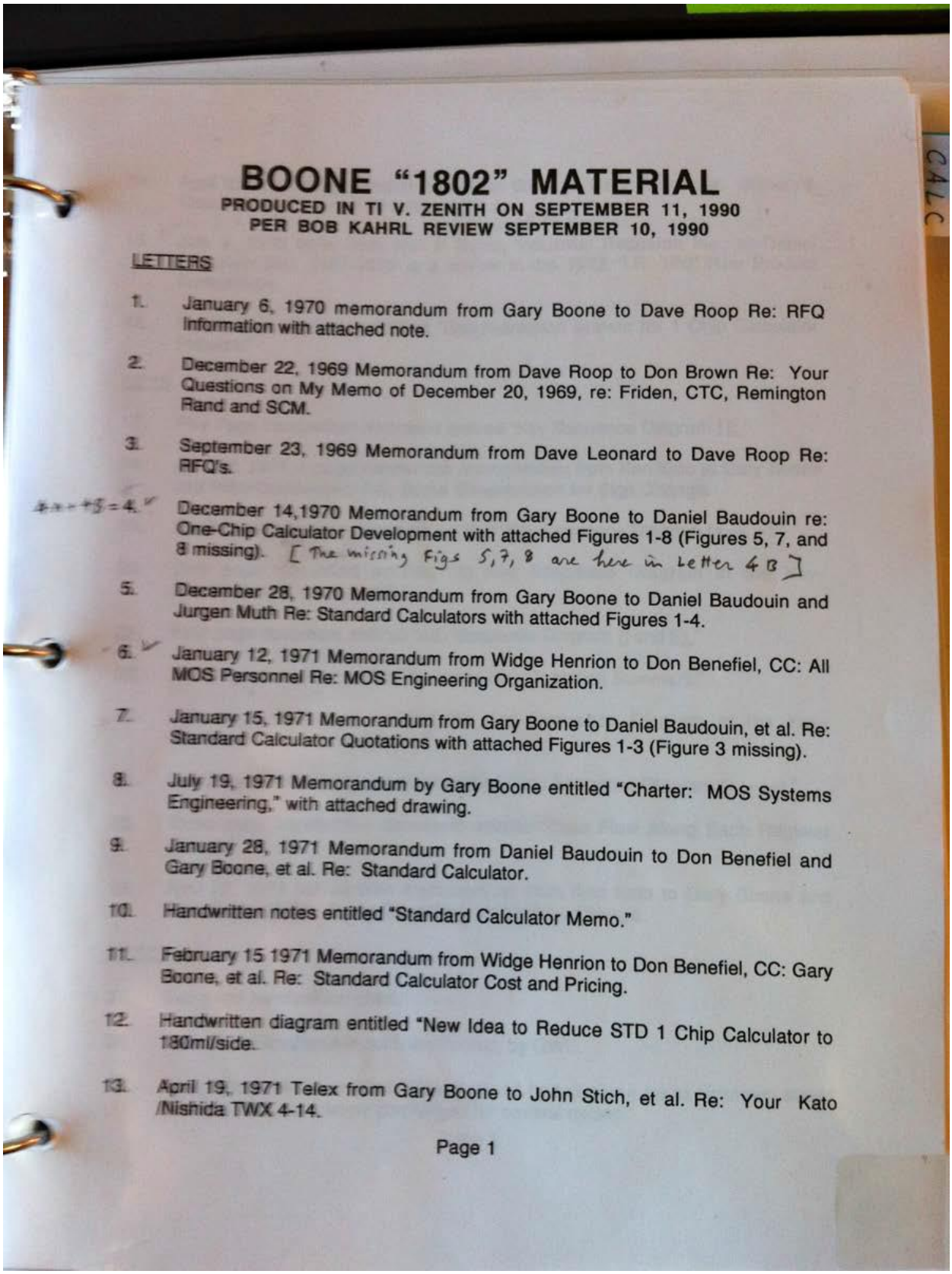
- The tutorial on microelectronic technology is highly readable, and highly recommended, for basic understanding of LSI. Note that the primary distinction of LSI (vs. earlier IC's) is computer technology; ~~and of VLSI (Tab 1)~~ and advanced photolithography.
- A major concern in the forecast VLSI era is the degree of device "scaling" which is appropriate for the automotive environment. Suppliers (Tab 2) are aggressive, but we need to monitor closely.

Box 4

Binders prepared for TI lawsuits, some originals, some duplicates.



Box 4 cont.



BOONE "1802" MATERIAL

PRODUCED IN TI V. ZENITH ON SEPTEMBER 11, 1990
PER BOB KAHRL REVIEW SEPTEMBER 10, 1990

LETTERS

1. January 6, 1970 memorandum from Gary Boone to Dave Roop Re: RFQ Information with attached note.

2. December 22, 1969 Memorandum from Dave Roop to Don Brown Re: Your Questions on My Memo of December 20, 1969, re: Friden, CTC, Remington Rand and SCM.

3. September 23, 1969 Memorandum from Dave Leonard to Dave Roop Re: RFQ's.

4. December 14,1970 Memorandum from Gary Boone to Daniel Baudouin re: One-Chip Calculator Development with attached Figures 1-8 (Figures 5, 7, and 8 missing). [The missing Figs 5, 7, 8 are here in Letter 4B]

5. December 28, 1970 Memorandum from Gary Boone to Daniel Baudouin and Jurgen Muth Re: Standard Calculators with attached Figures 1-4.

6. January 12, 1971 Memorandum from Widge Henrion to Don Benefiel, CC: All MOS Personnel Re: MOS Engineering Organization.

7. January 15, 1971 Memorandum from Gary Boone to Daniel Baudouin, et al. Re: Standard Calculator Quotations with attached Figures 1-3 (Figure 3 missing).

8. July 19, 1971 Memorandum by Gary Boone entitled "Charter: MOS Systems Engineering," with attached drawing.

9. January 28, 1971 Memorandum from Daniel Baudouin to Don Benefiel and Gary Boone, et al. Re: Standard Calculator.

10. Handwritten notes entitled "Standard Calculator Memo."

11. February 15 1971 Memorandum from Widge Henrion to Don Benefiel, CC: Gary Boone, et al. Re: Standard Calculator Cost and Pricing.

12. Handwritten diagram entitled "New Idea to Reduce STD 1 Chip Calculator to 180mil/side.

13. April 19, 1971 Telex from Gary Boone to John Stich, et al. Re: Your Kato /Nishida TWX 4-14.

Page 1

Box 4 cont.

14. April 23, 1971 Memorandum from John Stich to Gary Boone Re: Standard Calculators and your 4-19 telex.

15. July 3, 1972 letter from Neil P Ruzic, Industrial Research Inc., to Daniel Baudouin Re: TMS 1802 is a winner in the 1972 "I.R. 100" New Product Competition.

16. Handwritten document entitled "Documentation system for 1 Chip Calculator Projects."

KEYS

17. Five Page handwritten document entitled "Key Sequence Diagram I E"

18. April 22, 1971, 6 page handwritten memorandum from Ken Kato to Gary Boone and Mike Cockren(sic) Re: Some Consideration for Sign Change.

19. Six Page handwritten document entitled "Key Sequence Diagram (+, –, =)."

20. One page document entitled "A] Key Sequence Diagram in the Key-Combination of x, ÷, I and E."

21. Four page document entitled "Key Sequence Diagram (I and E)."

22. Five page document entitled "Irregular Key-Operation Summary."

23. One page document entitled "B] Key Sequence Diagram in the Key-Combination of x, ÷, +, – and =."

24. Five Page handwritten document entitled "Key Sequence Diagram (+, –, =)."

25. Three page handwritten document entitled "Data Flow Along Each Register (Cont.)."

26. April 22, 1971 handwritten memorandum from Ken Kato to Gary Boone and Mike Cochran Re: Some Consideration for Sign Change.

DESIGN

27. Two page handwritten chart.

28. TMS 1802 Simulation Input Data Format, by GWB.

29. Computer print-out entitled "Power up, all nodes come up to unknown states except a -bus completely discharged for several cycles."

Page 2

Box 4 cont.

30. Three pages of handwritten diagrams with the note "Power up C."
31. March 15, 1971 handwritten document with 5 attached pages of diagrams.
32. One page handwritten document with the note "Estimate 25 Mar 71".
33. One page handwritten diagram with the notes "Prenom" and "Test for Ovrt/e digit."
34. One page handwritten diagram.
35. March 24, 1971 handwritten diagram with the initials MJC.
36. March 24, 1971 handwritten document with the initials MJC.
37. Two page handwritten diagram.
38. Three page handwritten diagram.
39. One page handwritten diagram.
40. October 1 1971 schematic for a One chip calculator (+), (–), (=) (10 pages).
41. June 1 1971 computer printout entitled "RCM Code Assembler "
42. One page handwritten document.
43. One page handwritten document entitled "TMS 1802 Instruction Map.
44. One page handwritten document.
45. April 22, 1971 document entitled "TMS 1802 Instruction Set."
46. April 12, 1971 document by GWB entitled "TMS 1802 Data Format."
47. April 14, 1971 two page schematic by Boone.
47. One page handwritten document.
49. One page handwritten document.
50. One page handwritten document entitled "Segment Decode Matrix (1)."
51. March 22, 1971 Key Matrix.

Page 3

Box 4 cont.

52. April 23, 1971 Diagram entitled "Flag Logic (3-Phase Clock)."
53. April 23, 1971 Diagram entitled "TMS 1802 Flag Logic."
54. One page handwritten diagram.
55. One page handwritten diagram.
56. April 26, 1971 diagram entitled "Address Logic, TMS 1802."
57. March 22, 1971 diagram entitled "Scan Cycle Timing."
58. March 22, 1971 diagram entitled "Instruction Cycle Timing."
59. March 23, 1971 diagram entitled "Resistor Graph (8)."
60. March 23, 1971 diagram entitled "Resistor Graph (8).
61. One page handwritten diagram.
62. May 1, 1971 diagram entitled "TMS Input Protection."
63. April 25, 1971 diagram entitled "B : D Comparator."
64. Diagram entitled "TMS 1802 Mask Decoder.
65. April 22, 1971 diagram entitled "TMS 1802 'R' Decoder."
66. April 24, 1971 diagram entitled "TMS 1802 Condition Circuit."
67. April 22, 1971 diagram entitled "TMS 1802 Control Decoder."
68. One page handwritten diagram.
69. April 23, 1971 diagram entitled "TMS 1802 Data Format."
70. April 23, 1971 diagram entitled "TMS 1802 Timing Generator."
71. April 24, 1971 diagram entitled "TMS 1802 Scan Cycle Timing."
72. Diagram entitled "TMS 1802 ROM Logic."
73. One page diagram.
74. April 24, 1971 diagram entitled "State Counter Design."
75. One page diagram.

Page 4

Box 4 cont.

76. One page diagram.

77. One page diagram entitled "TMS 1802 Preliminary Pin Assignment."

78. One page drawing showing Keyboard configuration A and Keyboard configuration B.

79. One page document entitled "TMS 1802 Preliminary Electrical Specification."

80. One page document showing an eight-segment type display, a seven-segment type display and a seven-segment fluorescent display.

81. April 22, 1971 diagram entitled "TMS 1802 Segment Decoder."

82. April 25, 1971 diagram entitled "RAM Write Logic."

83. April 24, 1971 diagram.

84. One page diagram.

85. One page diagram.

86. One page chart.

87. One page diagram.

88. May 2, 1971 diagram entitled "TMS 1802 Display Interface."

89. May 1, 1971 diagram entitled "TMS 1802 Preliminary Electrical Specification."

90. May 1, 1971 diagram entitled "TMS 1802 Input Protection."

91. May 2, 1971 diagram.

92. April 20, 1971 diagram entitled "TMS 1802 'R' Decoder."

93. One page diagram entitled "1 Chip Calculator Preliminary Bar Layout."

94. One page diagram entitled "1 Chip Calculator Preliminary Bar Layout," with note, "Please update."

95. April 25, 1971 drawing for the TMS 1802 by GWB entitled "bonding Pad Plastic MOS 28 Lead, .250 x .250 Pad."

Page 5

Box 4 cont.

REVIEW

96. Three pages of handwritten notes entitled "TMS 1802 Design Review" with "Bill Micheletti" written at the top.

97. January 1971 publication entitled "MOS/LSI -- TMS 1802 NC, Eight-Digit MOS/LSI Calculator."

98. Six pages of diagrams entitled "Common Cathode Leo."

99. March 23, 1971 document entitled "TMS 1802 Input Routines" by GWB.

100. March 22, 1971 document entitled "Instruction Cycle Timing."

101. March 22, 1971 document entitled "Scan Cycle Timing."

102. One page diagram entitled "TMS 1802 ROM Logic."

103. March 27, 1971 diagram entitled "TMS 1802 ROM Layout."

104. One page diagram.

105. One page diagram entitled "Segment Decode Matrix (2)."

106. One page diagram entitled "Segment Decode Matrix (1)."

107. One page diagram entitled "TI MOS Cell Library."

108. One page diagram entitled "1 Chip Calculator Preliminary Bar Layout."

109. One page diagram entitled "1 Chip Calculator RAM 11e x 20c."

110. One page diagram entitled "256 x 9 ROM."

111. One page diagram.

112. March 23, 1971 diagram entitled "Register Graph (ß)."

113. March 23, 1971 diagram entitled "Register Graph (a)."
114. One page diagram.

115. One page diagram.

116. March 22, 1971 diagram entitled "Key Matrix," (two pages).

117. One page diagram entitled "Keyboard Inputs."

Page 6

Box 4 cont.

118. One page diagram entitled "TMS 1802 Flag Control Decoder."

119. One page diagram.

120. March 20, 1971 document by GWB entitled "Input Routines."

121. March 5, 1971 Telex from Sachi Nagae to Daniel Baudouin, CC: Gary Boone, et al. Re: Toshiba visit.

122. March 9, 1971 note from Jim Bunting, Bowmar to Gary Boone Re: multiplying two large numbers with decimals.

123. Memorandum from Daniel Baudouin to Den Kato, CC: Gary Boone, et al. Re: One chip calculator.

124. March 10, 1971 Memorandum from Floyd Clear to Don Benefiel, Gary Boone, et al Re: Visitor Notification, BOWMAR / ALI.

125. One page diagram.

126. One page diagram with a note to Bill from Boone.

127. One page diagram entitled TMS 1802 ROM Layout."

128. One page diagram.

129. One page diagram.

130. One page diagram by Joe Raymond.

131. One page diagram.

132. .One page diagram by Joe Raymond.

133. One page document entitled "TMS 1802 Electrical Specification."

134. One page document entitled "Package Drawing."

135. Page of a TI publication entitled "Mechanical Data and in Configuration."

136. One page document entitled "Power Supply Variation."

137. Two page document entitled "TMS 1802 Cell Designs."

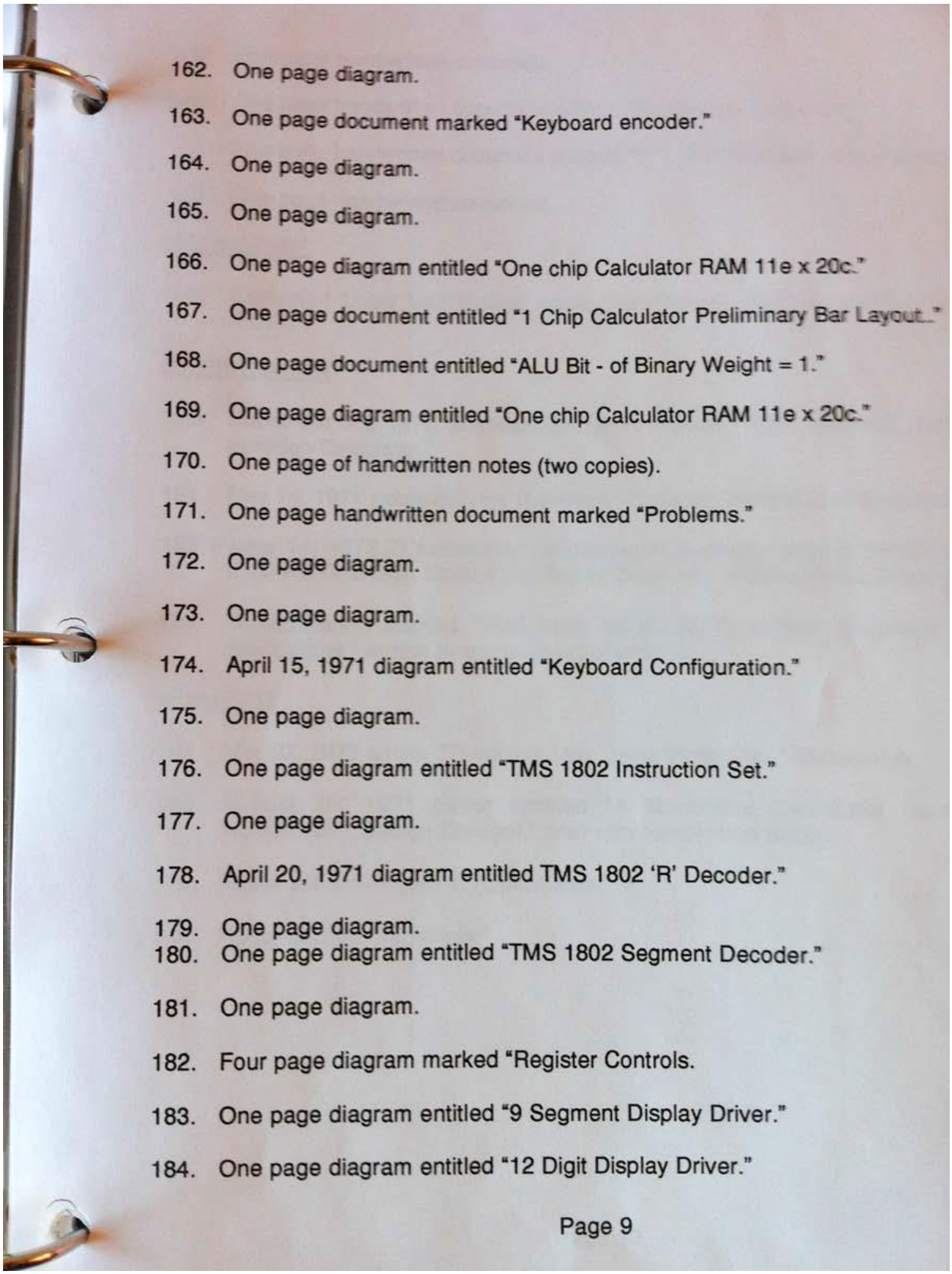
Page 7

Box 4 cont.

138. February 24, 1971 diagram entitled "Supercell Layout, 256 x 9 ROM."
139. One page document entitled "Bar Layout."
140. One page diagram.
141. One page diagram.
142. One page diagram entitled "Instructions which use DIM."
143. March 30, 1971 document entitled "μ OHS," (three pages).
144. March 31, 1971 document entitled "Useful Combinations of μ OHS."
145. March 30, 1971 document entitled "Flags." (nineteen pages).
146. Three page diagram by Joe Raymond entitled "Input Select."
147. One page diagram.
148. Six page document Re: Register Graphs.
149. One page diagram entitled "Eight-segment type Display."
150. April 20, 1971 Telex from Sachi Nagai to Gary Boone Re: TMS 1802.
151. One page diagram entitled "Revise 1802 Pre. Specs.."
152. One page diagram.
153. One page diagram marked "N + 1".
154. One page diagram.
155. One page diagram marked "N + 1".
156. Twelve page "Outline of Status Report."
157. One page diagram.
158. March 23, 1971 "TMS 1802 Input Routines" by GWB.
159. March 25, 1971 5 page computer printout marked "Toshiba Examples."
160. March 24, 1971 eight page computer printout.
161. One page diagram.

Page 8

Box 4 cont.



162. One page diagram.
163. One page document marked "Keyboard encoder."
164. One page diagram.
165. One page diagram.
166. One page diagram entitled "One chip Calculator RAM 11e x 20c."
167. One page document entitled "1 Chip Calculator Preliminary Bar Layout."
168. One page document entitled "ALU Bit - of Binary Weight = 1."
169. One page diagram entitled "One chip Calculator RAM 11e x 20c."
170. One page of handwritten notes (two copies).
171. One page handwritten document marked "Problems."
172. One page diagram.
173. One page diagram.
174. April 15, 1971 diagram entitled "Keyboard Configuration."
175. One page diagram.
176. One page diagram entitled "TMS 1802 Instruction Set."
177. One page diagram.
178. April 20, 1971 diagram entitled TMS 1802 'R' Decoder."
179. One page diagram.
180. One page diagram entitled "TMS 1802 Segment Decoder."
181. One page diagram.
182. Four page diagram marked "Register Controls.
183. One page diagram entitled "9 Segment Display Driver."
184. One page diagram entitled "12 Digit Display Driver."

Page 9

Box 4 cont.

185. One page handwritten document.

186. One page handwritten document entitled "Propose to Customer."

187. Five page handwritten document marked "Y" - LED Interface - Steve Pollack."

188. One page handwritten document.

DISCLOSURE

189. Calculator Logic Unit Patent Application Outline, draft containing the date 7/7/71.

SPECIFICATION

190. December 23, 1970 Specification by TI entitled "TMS 1802 NC, 8-Digit 4-Function Calculator."

191. May 14, 1971 publication by TI entitled "Tentative TMS1802NC Specifications."

192. June 14, 1972 TI publication, Marketing Newsbriefs entitled "MOS.LSI TMS 0100 NC One-Chip Update", by Daniel Baudouin, MOS/LSI New Products.

193. TI publication entitled "TMS 0100 MOS/LSI, One-Chip Calculator, Circuit Applications," written by the technical staff of TI.

MOS/HOST

194. May 22, 2972 article, "TI adds to Line Using 'Host Chip'," Electronics.

195. August 25, 1971 paper entitled "A Monolithic Calculator Using New MOS/HOST*, Design Concept," draft with handwritten notes.

196. Paper entitled "Metering Applications."

197. Paper entitled "Terminals."

Page 10

Box 4 cont.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Gary W. Boone

Art Unit: 231

Serial No.: 473,541

Examiner: D. Shaw

Filed: February 1, 1990

Docket: TI-4608D.10

For: VARIABLE FUNCTION PROGRAMMED DATA PROCESSING SYSTEM

Declaration under 37 C.F.R. § 1.131

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Dear Sir:

I, Gary W. Boone, of Colorado Springs, Colorado, hereby declare that I am an inventor named in the above-identified application and further declare as follows:

1) that no later than November 18, 1970, I conceived in this country the subject matter claimed in Claims 83-98 of this application (as amended) in a definite and complete manner, including a conception of all the claimed elements and their interaction;

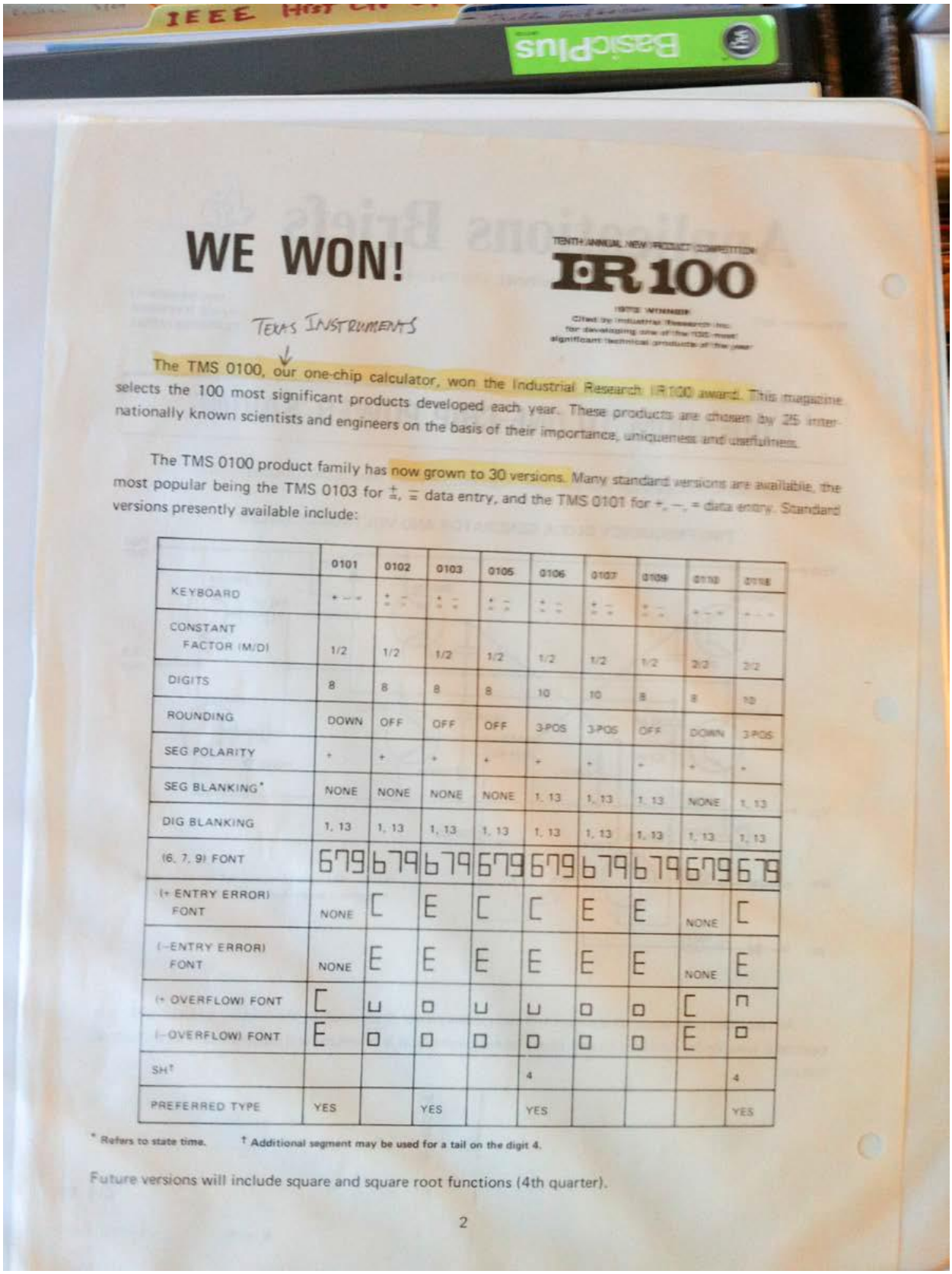
2) that my conception no later than November 18, 1970 of the claimed subject matter is shown by documents prepared no later than that date, true copies (with certain dates replaced with the notation "<date>") of which are attached as Exhibits A-1 to A-25, as follows:

Exhibit A-1: My 8/27/70 notes entitled "Canon Y" show a combination of elements on a single integrated circuit chip, including random access memory (RAM) for storing operands, read-only memory (ROM) for storing program instructions, an arithmetic logic unit (ALU) for processing operands in response to program instructions, a program address counter,

Box 4 cont.


WE WON!
IR100
TEXAS INSTRUMENTS
The TMS 0100, our one-chip calculator, won the Industrial Research IR100 award. This magazine selects the 100 most significant products developed each year. These products are chosen by 25 internationally known scientists and engineers on the basis of their importance, uniqueness and usefulness.
The TMS 0100 product family has now grown to 30 versions. Many standard versions are available, the most popular being the TMS 0103 for ÷, ×, data entry, and the TMS 0101 for +, −, = data entry. Standard versions presently available include:

Box 4 cont.



WE WON!

TEXAS INSTRUMENTS

TENTH ANNUAL NEW PRODUCT COMPETITION

IR 100

1973 WINNER

Cited by Industrial Research Inc. for developing one of the 100 most significant technical products of the year

The TMS 0100, our one-chip calculator, won the Industrial Research IR100 award. This magazine selects the 100 most significant products developed each year. These products are chosen by 25 internationally known scientists and engineers on the basis of their importance, uniqueness and usefulness.

The TMS 0100 product family has now grown to 30 versions. Many standard versions are available, the most popular being the TMS 0103 for $\pm$, = data entry, and the TMS 0101 for +, −, = data entry. Standard versions presently available include:

	0101	0102	0103	0105	0106	0107	0109	0110	0118
KEYBOARD	+ − =	± =	± =	± =	± =	± =	± =	+ − =	+ − =
CONSTANT FACTOR (M/DI	1/2	1/2	1/2	1/2	1/2	1/2	1/2	2/3	2/3
DIGITS	8	8	8	8	10	10	8	8	10
ROUNDING	DOWN	OFF	OFF	OFF	3-POS	3-POS	OFF	DOWN	3-POS
SEG POLARITY	+	+	+	+	+	+	-	+	+
SEG BLANKING*	NONE	NONE	NONE	NONE	1, 13	1, 13	1, 13	NONE	1, 13
DIG BLANKING	1, 13	1, 13	1, 13	1, 13	1, 13	1, 13	1, 13	1, 13	1, 13
(6, 7, 9) FONT	679	679	679	679	679	679	679	679	679
(+ ENTRY ERROR) FONT	NONE	C	E	C	C	E	E	NONE	C
(−ENTRY ERROR) FONT	NONE	E	E	E	E	E	E	NONE	E
(+ OVERFLOW) FONT	C	u	o	u	u	o	o	C	n
(−OVERFLOW) FONT	E	o	o	o	o	o	o	E	o
SH†					4				4
PREFERRED TYPE	YES		YES		YES				YES

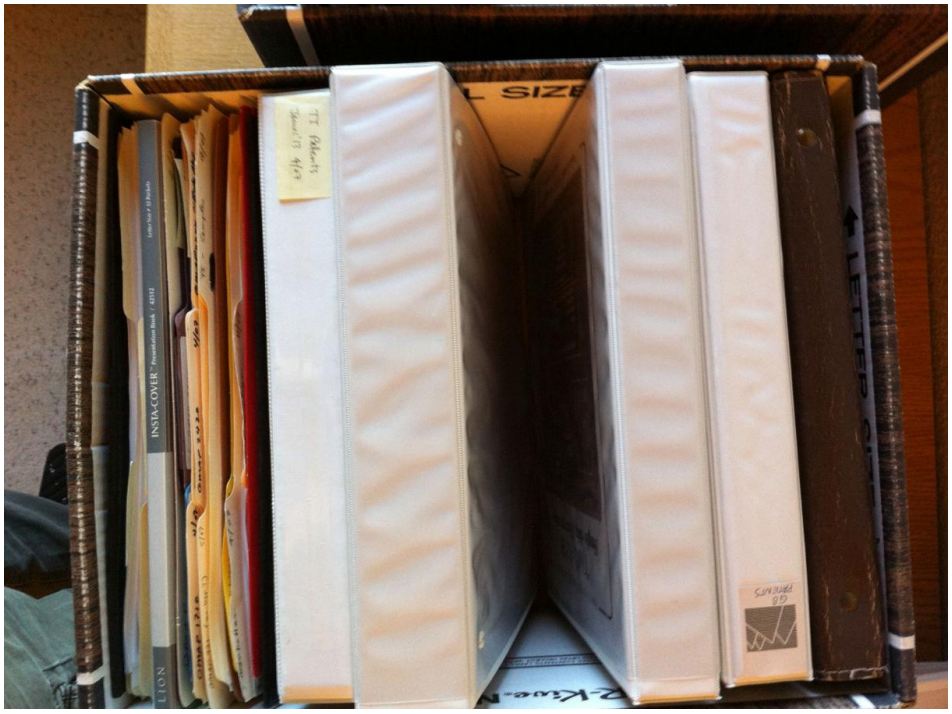
* Refers to state time. † Additional segment may be used for a tail on the digit 4.

Future versions will include square and square root functions (4th quarter).

2

Box 5

Notebooks prepared with TMC 1795 material. Very old brown notebook with TI vintage material in it.

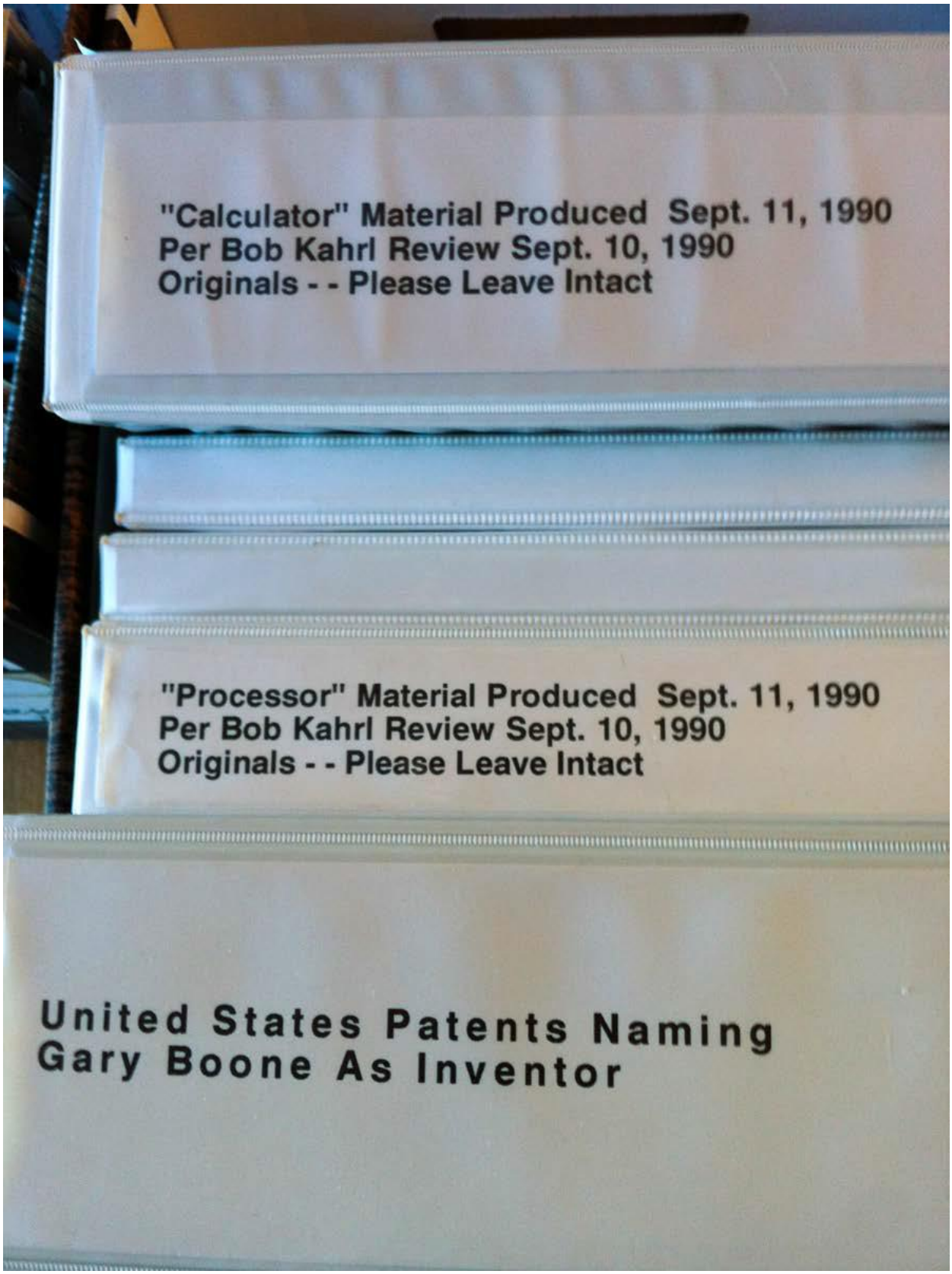


Box 6

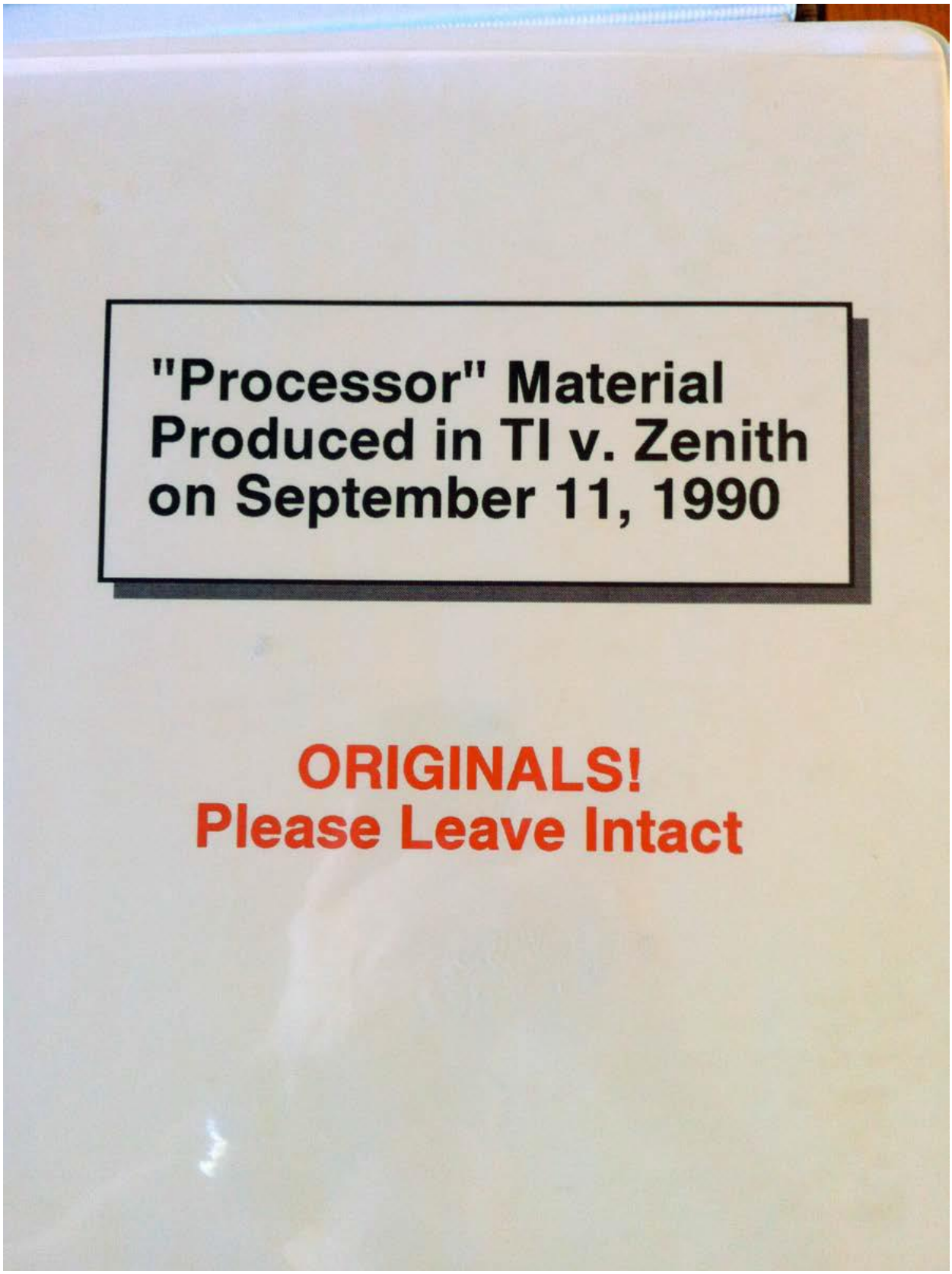
2 large binders contain references for TMC 1795 and TMS 1802.

2 small binders have TMC 1795 photos on their cover, are relevant to the 1996 video at Microprocessor Forum done by University Video, including notes and emails with UVC.

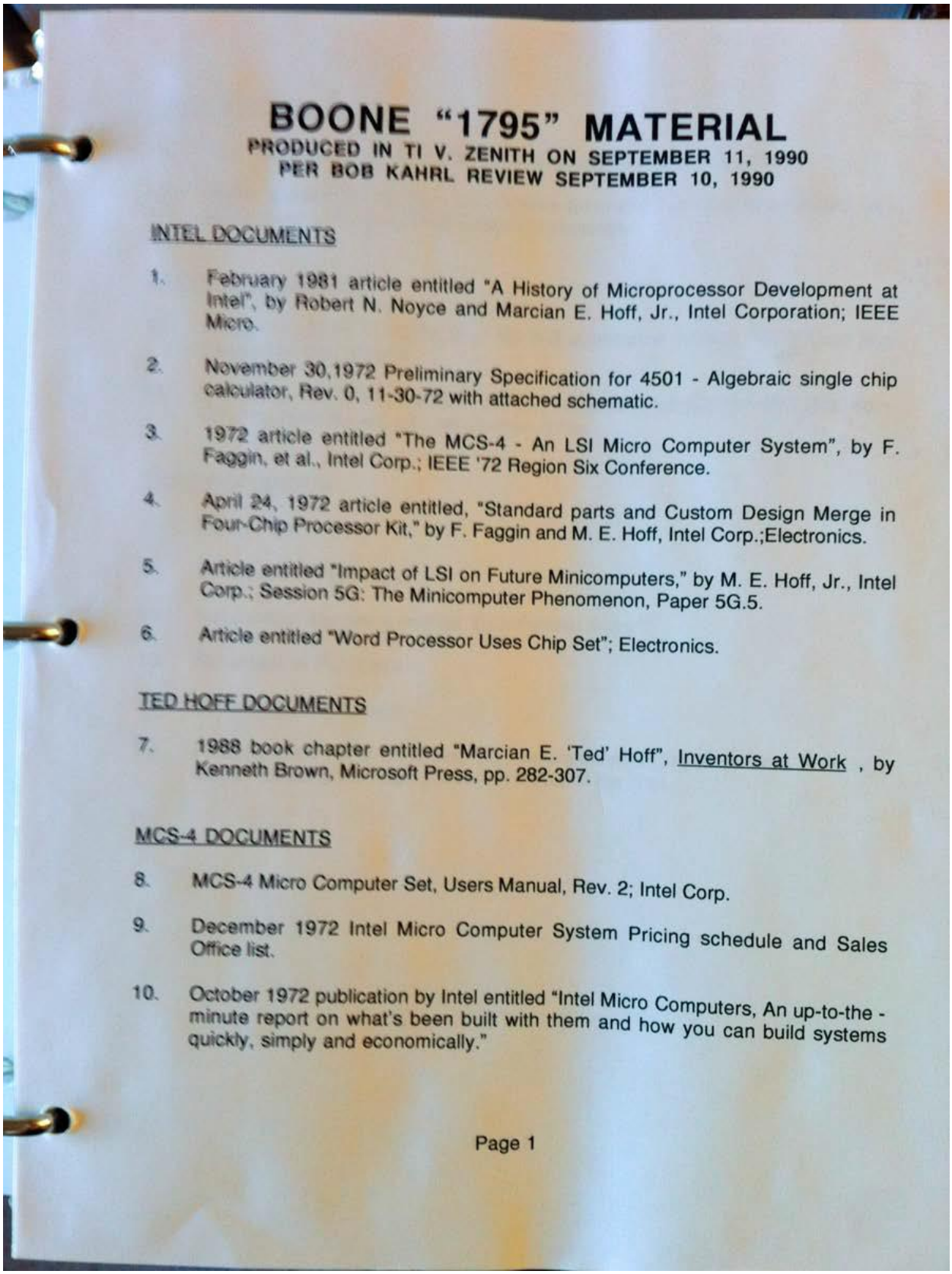
Box 6 cont.


"Calculator" Material Produced Sept. 11, 1990
Per Bob Kahrl Review Sept. 10, 1990
Originals - - Please Leave Intact
"Processor" Material Produced Sept. 11, 1990
Per Bob Kahrl Review Sept. 10, 1990
Originals - - Please Leave Intact
United States Patents Naming
Gary Boone As Inventor

Box 6 cont.


"Processor" Material
Produced in TI v. Zenith
on September 11, 1990
ORIGINALS!
Please Leave Intact

Box 6 cont.



BOONE "1795" MATERIAL

PRODUCED IN TI V. ZENITH ON SEPTEMBER 11, 1990
PER BOB KAHRL REVIEW SEPTEMBER 10, 1990

INTEL DOCUMENTS

1. February 1981 article entitled "A History of Microprocessor Development at Intel", by Robert N. Noyce and Marcian E. Hoff, Jr., Intel Corporation; IEEE Micro.

2. November 30,1972 Preliminary Specification for 4501 - Algebraic single chip calculator, Rev. 0, 11-30-72 with attached schematic.

3. 1972 article entitled "The MCS-4 - An LSI Micro Computer System", by F. Faggin, et al., Intel Corp.; IEEE '72 Region Six Conference.

4. April 24, 1972 article entitled, "Standard parts and Custom Design Merge in Four-Chip Processor Kit," by F. Faggin and M. E. Hoff, Intel Corp.;Electronics.

5. Article entitled "Impact of LSI on Future Minicomputers," by M. E. Hoff, Jr., Intel Corp.; Session 5G: The Minicomputer Phenomenon, Paper 5G.5.

6. Article entitled "Word Processor Uses Chip Set"; Electronics.

TED HOFF DOCUMENTS

7. 1988 book chapter entitled "Marcian E. 'Ted' Hoff", Inventors at Work , by Kenneth Brown, Microsoft Press, pp. 282-307.

MCS-4 DOCUMENTS

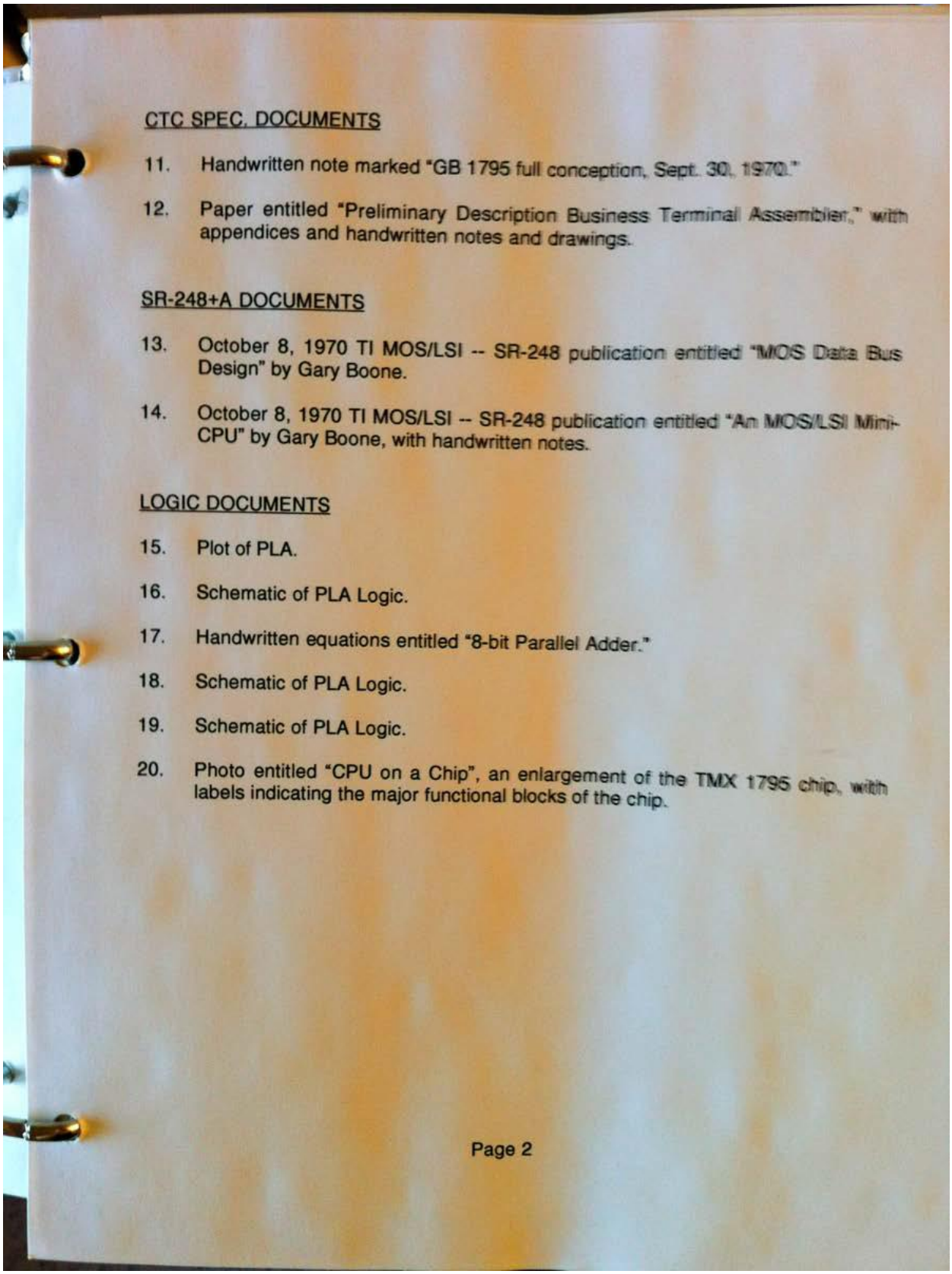
8. MCS-4 Micro Computer Set, Users Manual, Rev. 2; Intel Corp.

9. December 1972 Intel Micro Computer System Pricing schedule and Sales Office list.

10. October 1972 publication by Intel entitled "Intel Micro Computers, An up-to-the - minute report on what's been built with them and how you can build systems quickly, simply and economically."

Page 1

Box 6 cont.



CTC SPEC. DOCUMENTS

11. Handwritten note marked "GB 1795 full conception, Sept. 30, 1970."

12. Paper entitled "Preliminary Description Business Terminal Assembler," with appendices and handwritten notes and drawings.

SR-248+A DOCUMENTS

13. October 8, 1970 TI MOS/LSI -- SR-248 publication entitled "MOS Data Bus Design" by Gary Boone.

14. October 8, 1970 TI MOS/LSI -- SR-248 publication entitled "An MOS/LSI Mini-CPU" by Gary Boone, with handwritten notes.

LOGIC DOCUMENTS

15. Plot of PLA.

16. Schematic of PLA Logic.

17. Handwritten equations entitled "8-bit Parallel Adder."

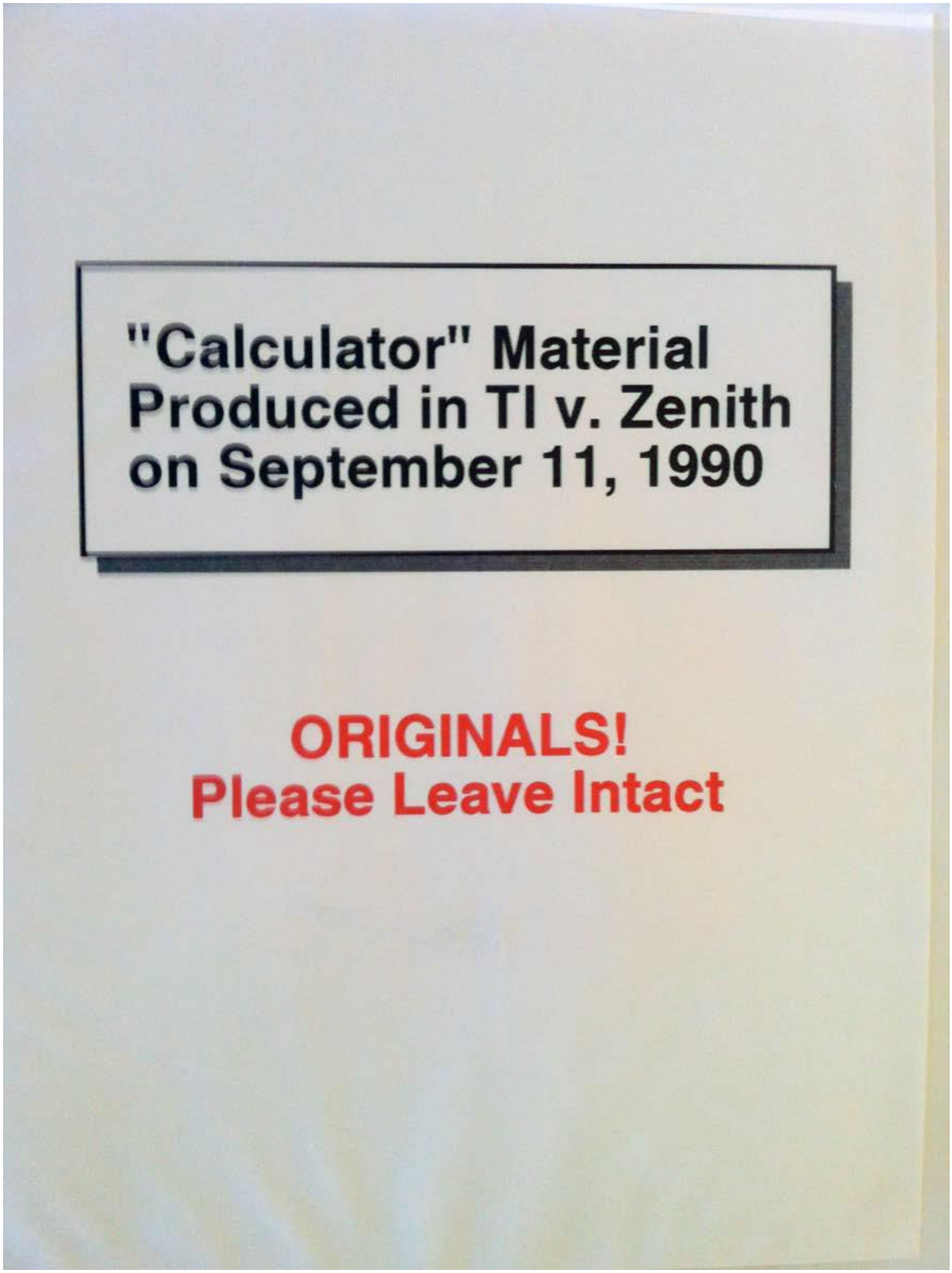
18. Schematic of PLA Logic.

19. Schematic of PLA Logic.

20. Photo entitled "CPU on a Chip", an enlargement of the TMX 1795 chip, with labels indicating the major functional blocks of the chip.

Page 2

Box 6 cont.


"Calculator" Material
Produced in TI v. Zenith
on September 11, 1990
ORIGINALS!
Please Leave Intact

Box 6 cont.

BOONE "1802" MATERIAL

PRODUCED IN TI V. ZENITH ON SEPTEMBER 11, 1990
PER BOB KAHRL REVIEW SEPTEMBER 10, 1990

LETTERS

1. January 6, 1970 memorandum from Gary Boone to Dave Roop Re: RFQ Information with attached note.

2. December 22, 1969 Memorandum from Dave Roop to Don Brown Re: Your Questions on My Memo of December 20, 1969, re: Friden, CTC, Remington Rand and SCM.

3. September 23, 1969 Memorandum from Dave Leonard to Dave Roop Re: RFQ's.

4. December 14,1970 Memorandum from Gary Boone to Daniel Baudouin re: One-Chip Calculator Development with attached Figures 1-8 (Figures 5, 7, and 8 missing).

5. December 28, 1970 Memorandum from Gary Boone to Daniel Baudouin and Jurgen Muth Re: Standard Calculators with attached Figures 1-4.

6. January 12, 1971 Memorandum from Widge Henrion to Don Benefiel, CC: All MOS Personnel Re: MOS Engineering Organization.

7. January 15, 1971 Memorandum from Gary Boone to Daniel Baudouin, et al. Re: Standard Calculator Quotations with attached Figures 1-3 (Figure 3 missing).

8. July 19, 1971 Memorandum by Gary Boone entitled "Charter: MOS Systems Engineering," with attached drawing.

9. January 28, 1971 Memorandum from Daniel Baudouin to Don Benefiel and Gary Boone, et al. Re: Standard Calculator.

10. Handwritten notes entitled "Standard Calculator Memo."

11. February 15 1971 Memorandum from Widge Henrion to Don Benefiel, CC: Gary Boone, et al. Re: Standard Calculator Cost and Pricing.

12. Handwritten diagram entitled "New Idea to Reduce STD 1 Chip Calculator to 180ml/side.

13. April 19, 1971 Telex from Gary Boone to John Stich, et al. Re: Your Kato /Nishida TWX 4-14.

Page 1

Box 6 cont.

185. One page handwritten document.

186. One page handwritten document entitled "Propose to Customer."

187. Five page handwritten document marked "Y" - LED Interface - Steve Pollack."

188. One page handwritten document.

DISCLOSURE

189. Calculator Logic Unit Patent Application Outline, draft containing the date 7/7/71.

SPECIFICATION

190. December 23, 1970 Specification by TI entitled "TMS 1802 NC, 8-Digit 4-Function Calculator."

191. May 14, 1971 publication by TI entitled "Tentative TMS1802NC Specifications."

192. June 14, 1972 TI publication, Marketing Newsbriefs entitled "MOS.LSI TMS 0100 NC One-Chip Update", by Daniel Baudouin, MOS/LSI New Products.

193. TI publication entitled "TMS 0100 MOS/LSI, One-Chip Calculator, Circuit Applications," written by the technical staff of TI.

MOS/HOST

194. May 22, 2972 article, "TI adds to Line Using 'Host Chip'," Electronics.

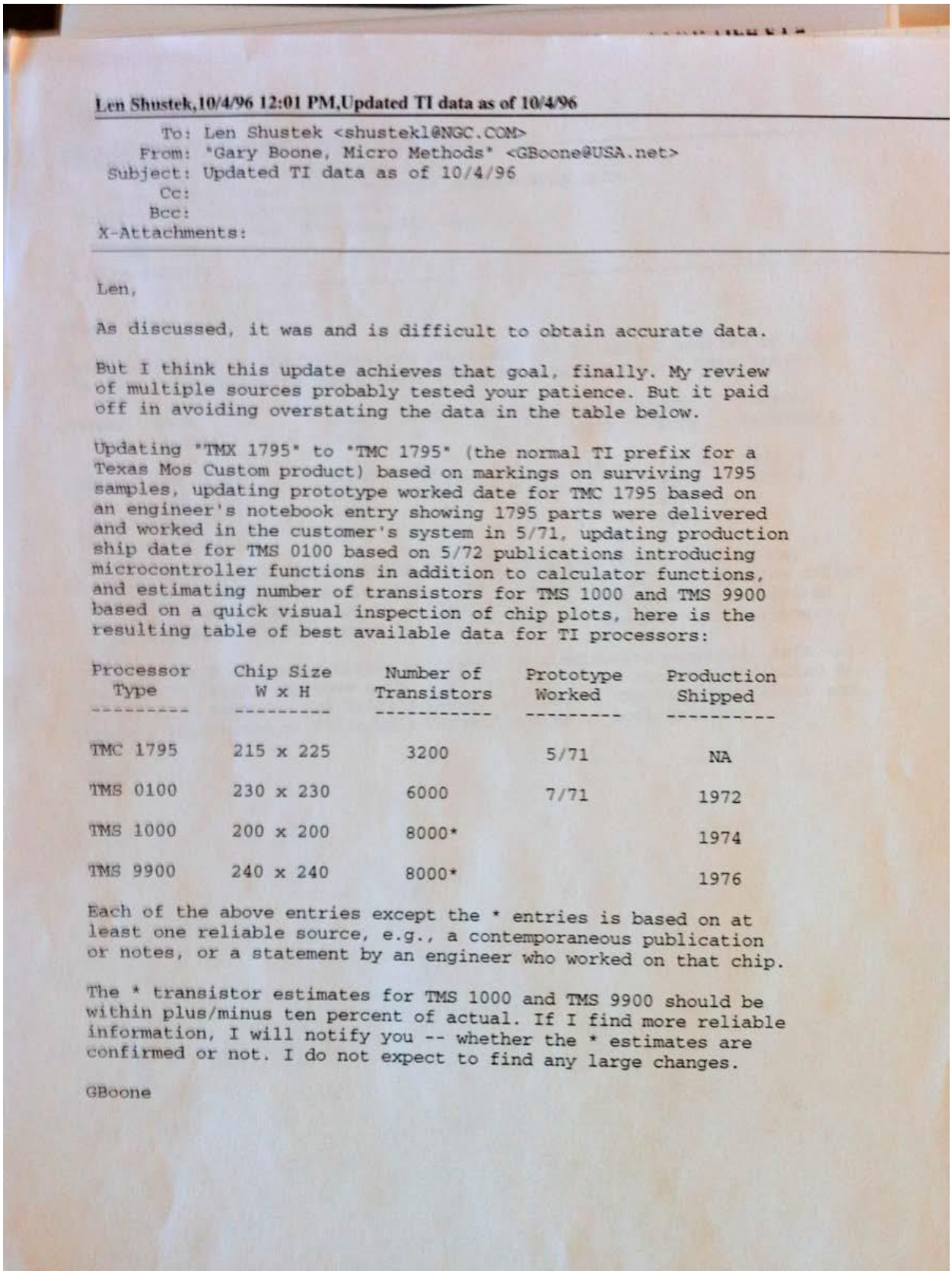
195. August 25, 1971 paper entitled "A Monolithic Calculator Using New MOS/HOST", Design Concept," draft with handwritten notes.

196. Paper entitled "Metering Applications."

197. Paper entitled "Terminals."

Page 10

Box 6 cont.



Len Shustek,10/4/96 12:01 PM,Updated TI data as of 10/4/96

To: Len Shustek <shustekl@NGC.COM>
From: "Gary Boone, Micro Methods" <GBoone@USA.net>
Subject: Updated TI data as of 10/4/96
Cc:
Bcc:
X-Attachments:

Len,

As discussed, it was and is difficult to obtain accurate data.

But I think this update achieves that goal, finally. My review of multiple sources probably tested your patience. But it paid off in avoiding overstating the data in the table below.

Updating "TMX 1795" to "TMC 1795" (the normal TI prefix for a Texas Mos Custom product) based on markings on surviving 1795 samples, updating prototype worked date for TMC 1795 based on an engineer's notebook entry showing 1795 parts were delivered and worked in the customer's system in 5/71, updating production ship date for TMS 0100 based on 5/72 publications introducing microcontroller functions in addition to calculator functions, and estimating number of transistors for TMS 1000 and TMS 9900 based on a quick visual inspection of chip plots, here is the resulting table of best available data for TI processors:

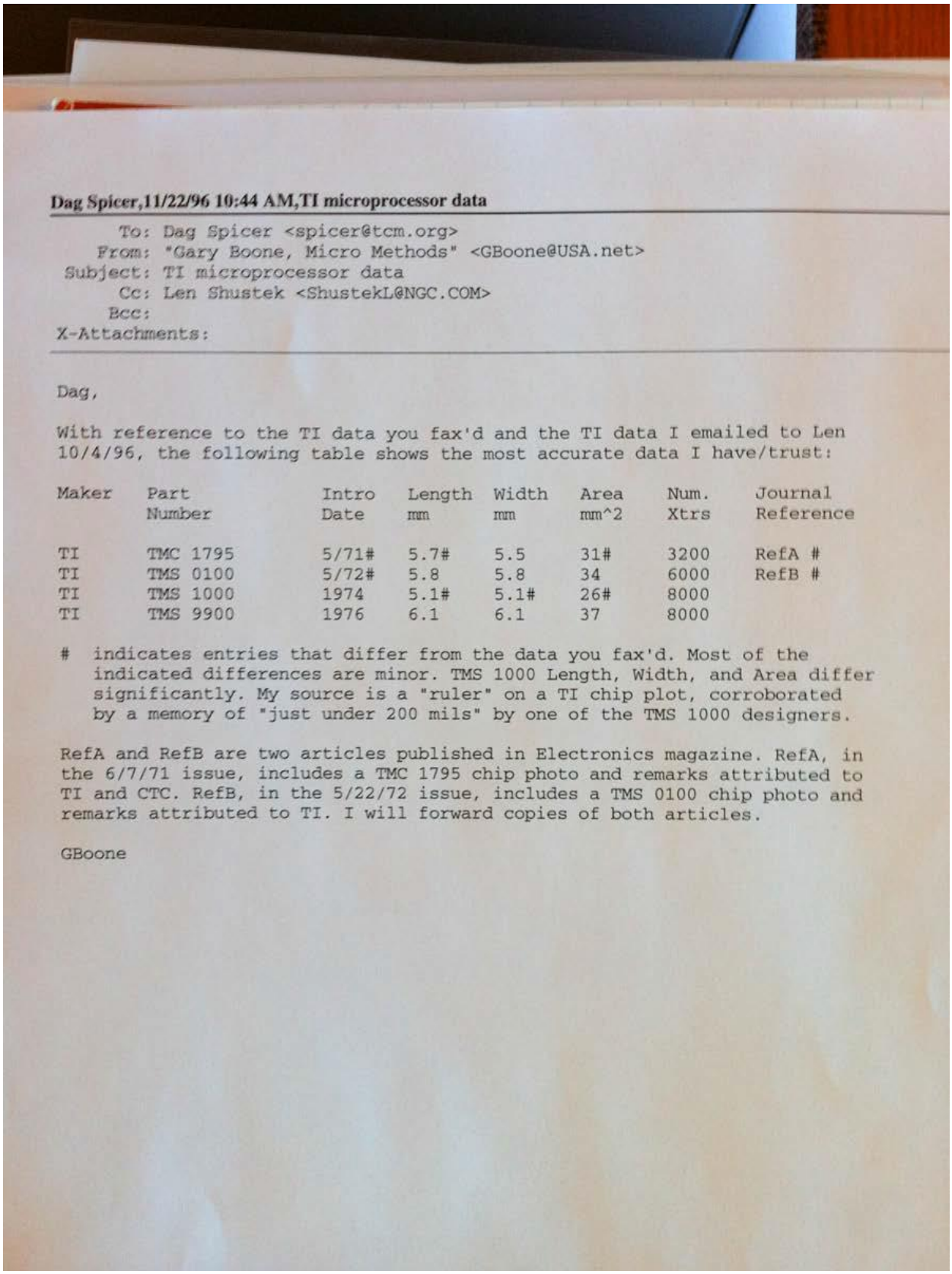
Processor Type	Chip Size W x H	Number of Transistors	Prototype Worked	Production Shipped
TMC 1795	215 x 225	3200	5/71	NA
TMS 0100	230 x 230	6000	7/71	1972
TMS 1000	200 x 200	8000*		1974
TMS 9900	240 x 240	8000*		1976

Each of the above entries except the * entries is based on at least one reliable source, e.g., a contemporaneous publication or notes, or a statement by an engineer who worked on that chip.

The * transistor estimates for TMS 1000 and TMS 9900 should be within plus/minus ten percent of actual. If I find more reliable information, I will notify you -- whether the * estimates are confirmed or not. I do not expect to find any large changes.

GBoone

Box 6 cont.



Dag Spicer,11/22/96 10:44 AM,TI microprocessor data

To: Dag Spicer <spicer@tcm.org>
From: "Gary Boone, Micro Methods" <GBoone@USA.net>
Subject: TI microprocessor data
Cc: Len Shustek <ShustekL@NGC.COM>
Bcc:
X-Attachments:

Dag,

With reference to the TI data you fax'd and the TI data I emailed to Len 10/4/96, the following table shows the most accurate data I have/trust:

Maker	Part Number	Intro Date	Length mm	Width mm	Area mm^2	Num. Xtrs	Journal Reference
TI	TMC 1795	5/71#	5.7#	5.5	31#	3200	RefA #
TI	TMS 0100	5/72#	5.8	5.8	34	6000	RefB #
TI	TMS 1000	1974	5.1#	5.1#	26#	8000	
TI	TMS 9900	1976	6.1	6.1	37	8000	

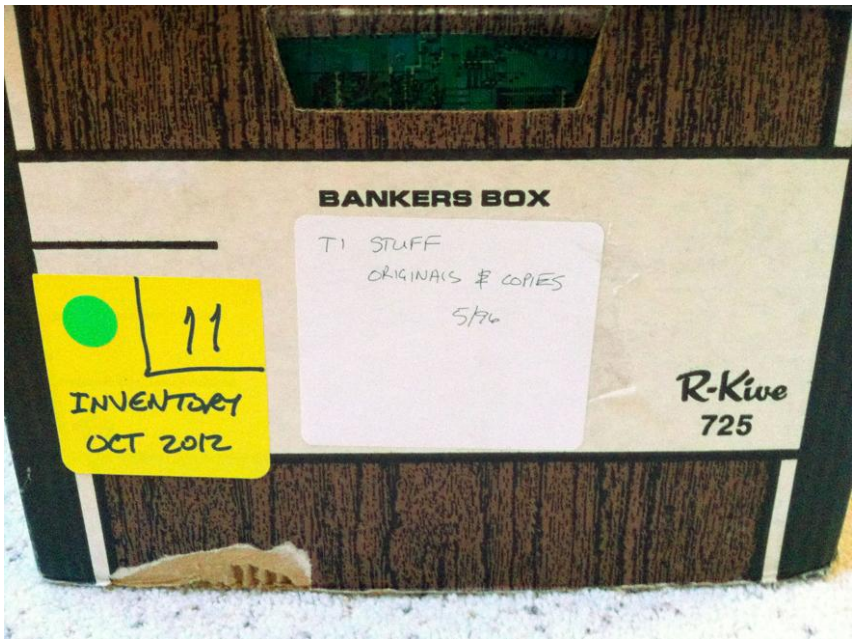
# indicates entries that differ from the data you fax'd. Most of the indicated differences are minor. TMS 1000 Length, Width, and Area differ significantly. My source is a "ruler" on a TI chip plot, corroborated by a memory of "just under 200 mils" by one of the TMS 1000 designers.

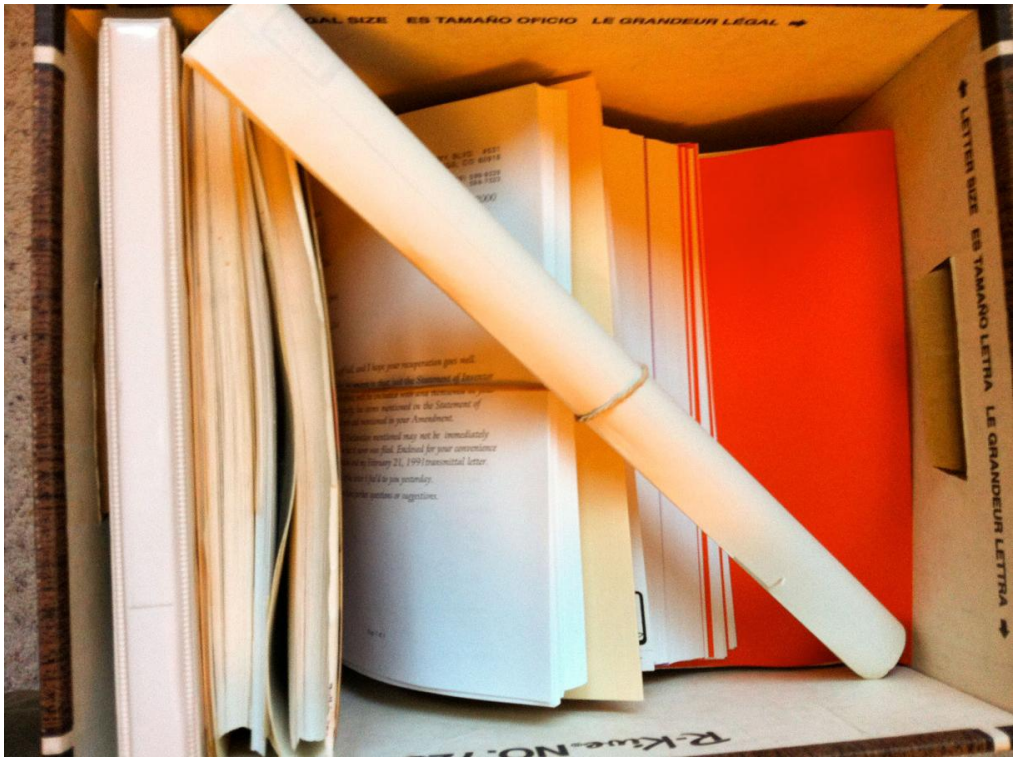
RefA and RefB are two articles published in Electronics magazine. RefA, in the 6/7/71 issue, includes a TMC 1795 chip photo and remarks attributed to TI and CTC. RefB, in the 5/22/72 issue, includes a TMS 0100 chip photo and remarks attributed to TI. I will forward copies of both articles.

GBoone

Box 11 — currently at Fawn Meadow

TI material. UVC video material. Copies of references. Some info re TMC 1795 demo hardware from 1993. Folder with memos on TI visit to Ford in 1971. Hyatt v Boone material including CFR 131 declaration. Correspondence with Larry Bassuk. Stan Mazor plaintiffs exhibit from 1990.





Box 11 cont.

MEMORANDUM

October 4, 1971

TO: Dan Baudouin
Don Crocker
Fran Krch

COPY: Glenn Hartsell
Widge Henrion

FROM: Gary Boone

SUBJECT: Inquiry Report

I think we may have walked into the mass market our "CPU-on-a-chip" concept desperately needs. Bob Fortier of Ford's Engine Control Division called to discuss their current development of an engine control system utilizing an MOS computer plus RAMs and ROMs. They are currently at an engagement stage with an unnamed Japanese vendor for an MOS feasibility study. However, my inputs on the 1795/4019 and future TI systems were apparently interesting enough to put that plan on hold until we can get to Detroit. Bob has requested that we meet as soon as I get back from Europe, tentatively on Thursday, October 21, 1971.

In the interim, Glenn will have made some progress in terms of specification and application data, the breadboard demonstration unit, and possibly prototype samples.

I have asked Don Crocker to send some data (Kent Andres PLA Application Report, TMS 1802 Specification, and 1795/4019 preliminary data) to Bob. Also, I think marketing should pick up the ball with respect to any additional information, planning, and scheduling meetings, etc.

Gary Boone

GB:ls

Box 11 cont.

MEMORANDUM

2 November 1971

TO: Fran Krch Daniel Baudouin

CC: Dave Simpson Gary Boone

FROM: Glenn Hartsell

SUBJECT: Customer Visit Report
Ford Motor Company visit of 10-21-71

VISITORS: David Moyer, Sean Devlin, Bob Fortier from General Parts Division - Advanced Engine Control Program

TIers: Gary Boone, Don Crocker, Glenn Hartsell, Fran Krch

MAIN INTEREST: Specific electronic controller for:

1.) Fuel injection timing and duration.

2.) Ignition timing.

3.) Control of exhaust gas recirculation in internal combustion gasoline engines for autos.

They presently are using PDP-11 to control an engine on a test stand. Also, a separate ignition control system called EMIS - Electronically Modulated Ignition System - is being developed.

They are interested in MOS/LSI to keep cost down, but must have high reliability in a severe environment - unit must operate under the hood where ambient temperatures reach 120 degrees C. Consideration will be limited to parts produced by established processes because of reliability requirement.

REQUIREMENTS:

I. A functional prototype system which can be mounted in an auto by February 1972. This system can be less sophisticated than the final system so long as the engine performance degradation is not too noticable to the driver. This prototype system need not be mounted under the hood.

II. To verify that MOS/LSI circuits can function reliably in an automotive environment, a test program involving 200 cars will be started in February 1972. Each of the cars will be equipped with a circuit performing some function which can be monitored by the driver. The unit is not required to perform a useful function, but it would be desirable if it does.

Box 11 cont.

MEMORANDUM Page -2- 11-02-71

III. Custom designed devices for pre-production and production systems according to the following schedule:

	6/73	1/74	6/74	6/75
Gov't. certification program	10-15			
Pre-production		100	10K-50K	
Production				2-3M

PROPOSED SOLUTIONS:

I. The 1795A CPU was proposed as the best way to achieve a functional prototype system in the limited time available. It does not have the computational speed to meet the final system requirements as now defined, but it probably can be used in the prototype system.

II. The 1802 calculator chip was suggested for use in the reliability demonstration program. Its use in an electronic speedometer/tachometer was discussed, and will be considered by Ford.

III. A custom designed processor and ROM system will be the most economical solution for the high volume of 2-3 million systems per year for the production system.

ACTION ITEMS:

FORD MOTOR COMPANY:
1.) Determine if 1795A will meet minimum requirements for a functional prototype system.
2.) Consider uses of 1802 for reliability program.

MOS ENGINEERING:
Design logic for interfacing 1795A to existing ROM.

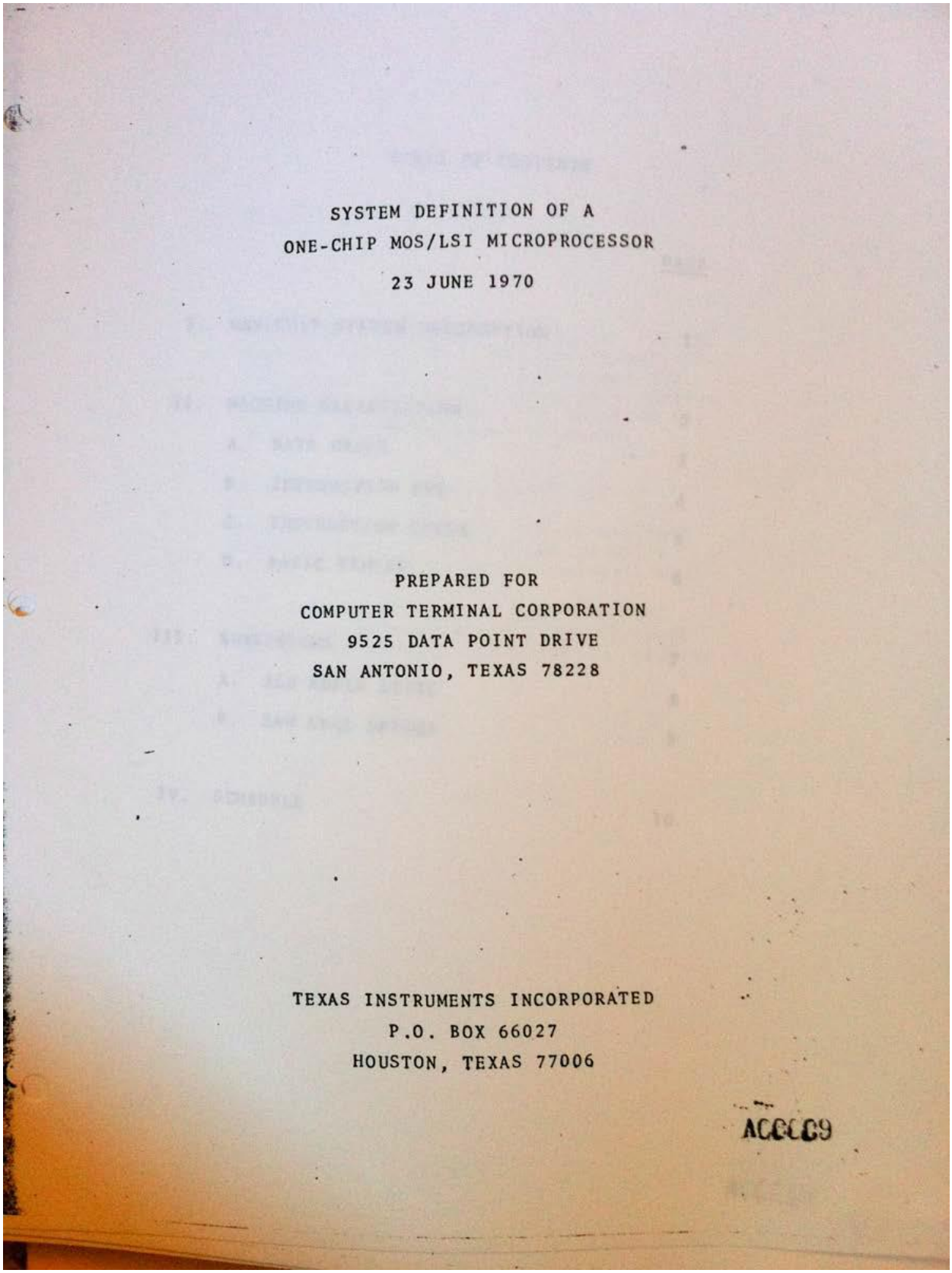
MOS MARKETING:
1.) Send Ford two 1795A sample units - promised 11/30 to 12/15/71.
2.) Follow up on application of 1802 in electronic speedometer/tachometer unit.

Glenn Hartsell

Glenn Hartsell

GH/mgm

Box 11 cont.



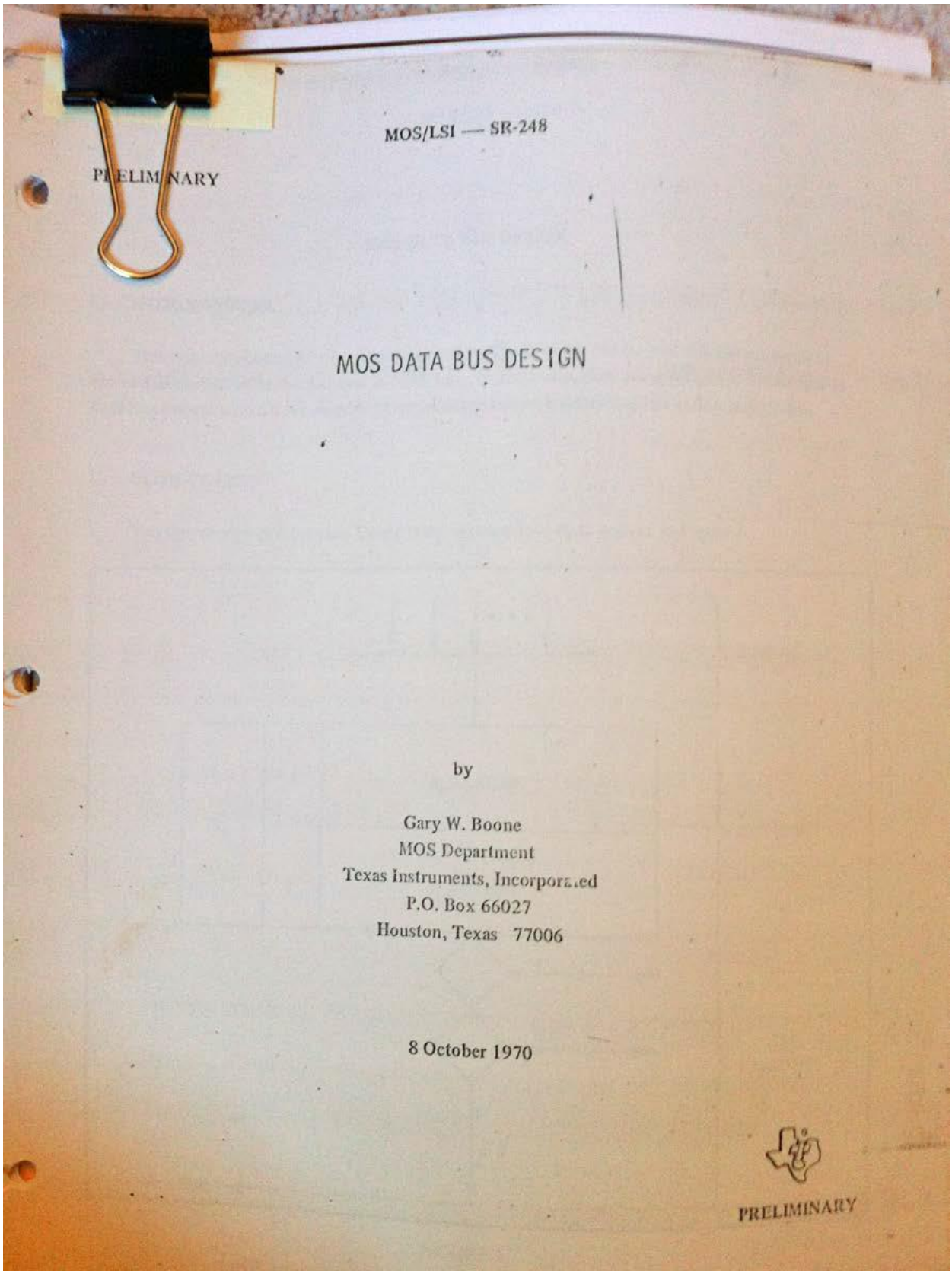
SYSTEM DEFINITION OF A
ONE-CHIP MOS/LSI MICROPROCESSOR

23 JUNE 1970

PREPARED FOR
COMPUTER TERMINAL CORPORATION
9525 DATA POINT DRIVE
SAN ANTONIO, TEXAS 78228

TEXAS INSTRUMENTS INCORPORATED
P.O. BOX 66027
HOUSTON, TEXAS 77006

Box 11 cont.



PRELIMINARY

MOS/LSI — SR-248

MOS DATA BUS DESIGN

by

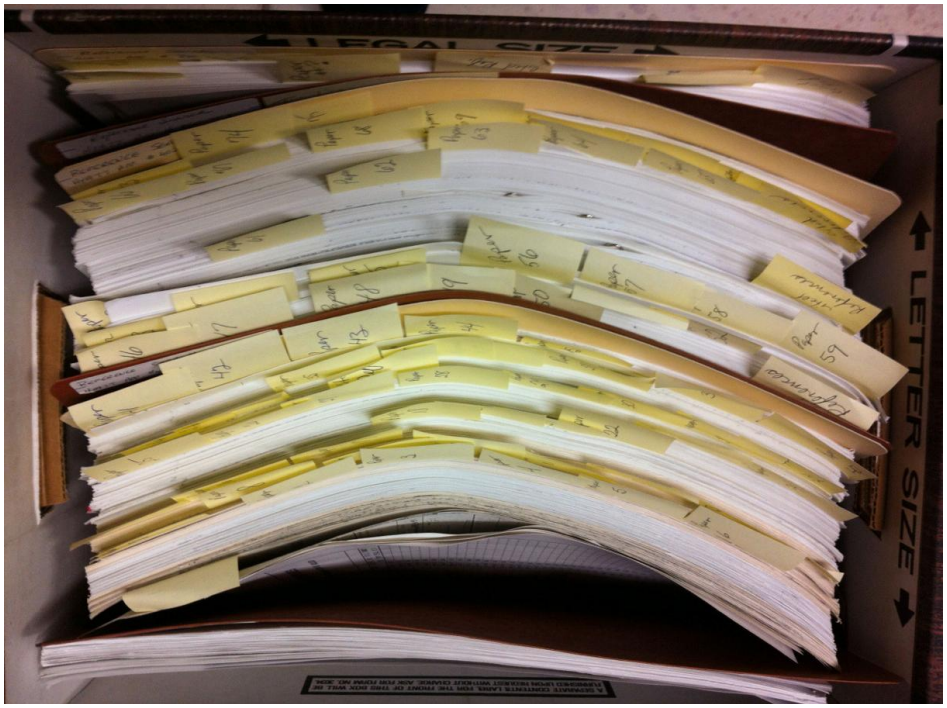
Gary W. Boone
MOS Department
Texas Instruments, Incorporated
P.O. Box 66027
Houston, Texas 77006

8 October 1970

PRELIMINARY

Box 42

Hyatt patent application and copies of references.



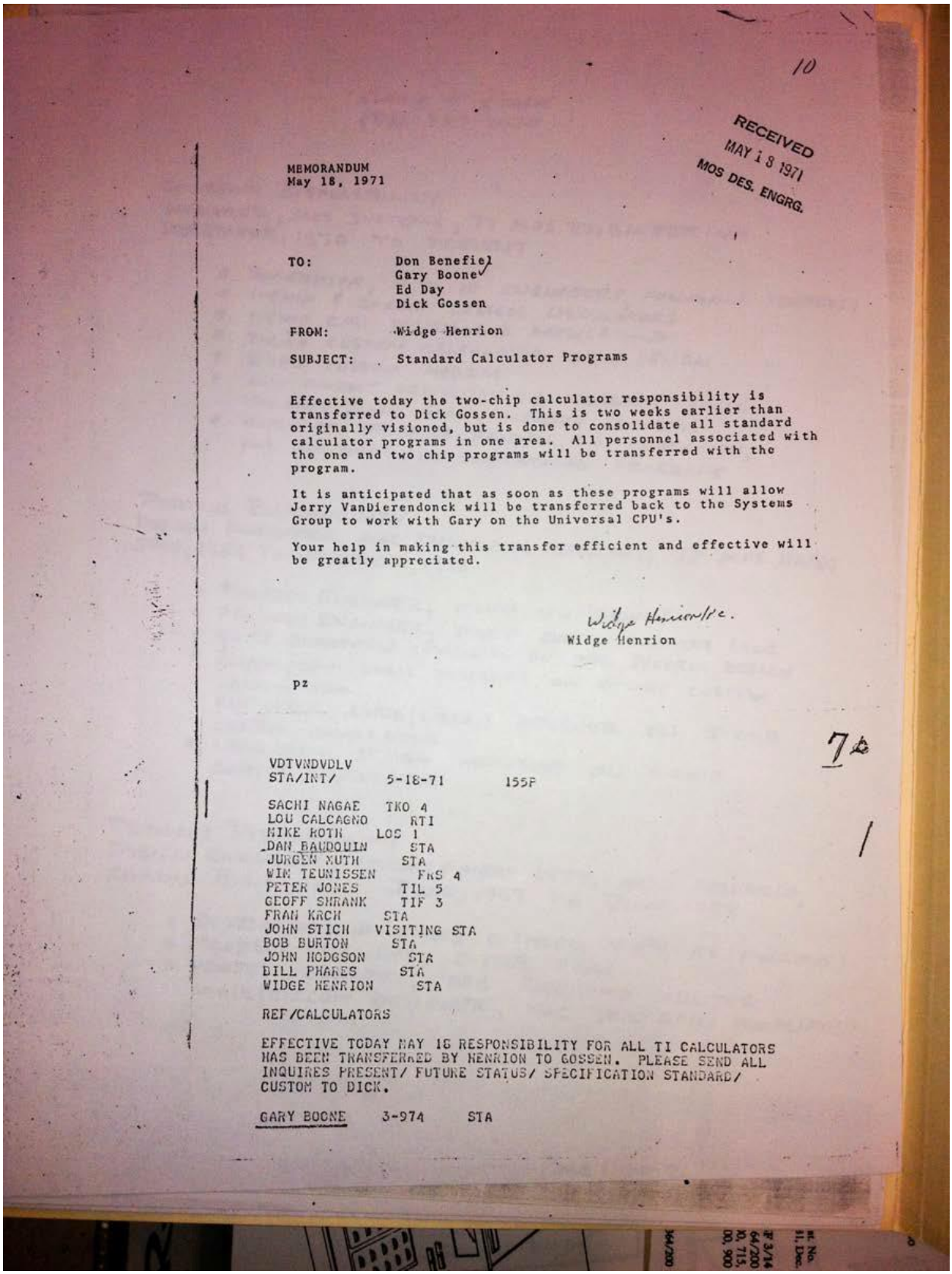
Box 59

Large amount of early micro references. Early Gary Boone files. 1971 memos from TI. 1982 original correspondence with Mel Sharp. Litronix v Bowmar material. Also later material ca. 1990.

Box 59 cont.


4608.*
1/91
EVANS, DOELZ & THREADGOLD
REMINGTON
12/89
ELECTRONIC ARRAYS (EA-S 100)
Patents

Box 59 cont.



10

RECEIVED
MAY 18 1971
MOS DES. ENGRG.

MEMORANDUM
May 18, 1971

TO: Don Benefiel
Gary Boone
Ed Day
Dick Gossen

FROM: Widge Henrion

SUBJECT: Standard Calculator Programs

Effective today the two-chip calculator responsibility is transferred to Dick Gossen. This is two weeks earlier than originally visioned, but is done to consolidate all standard calculator programs in one area. All personnel associated with the one and two chip programs will be transferred with the program.

It is anticipated that as soon as these programs will allow Jerry VanDierendonck will be transferred back to the Systems Group to work with Gary on the Universal CPU's.

Your help in making this transfer efficient and effective will be greatly appreciated.

Widge Henrion

Widge Henrion

pz

7b

VDTVNDVDLV
STA/INT/ 5-18-71 155F

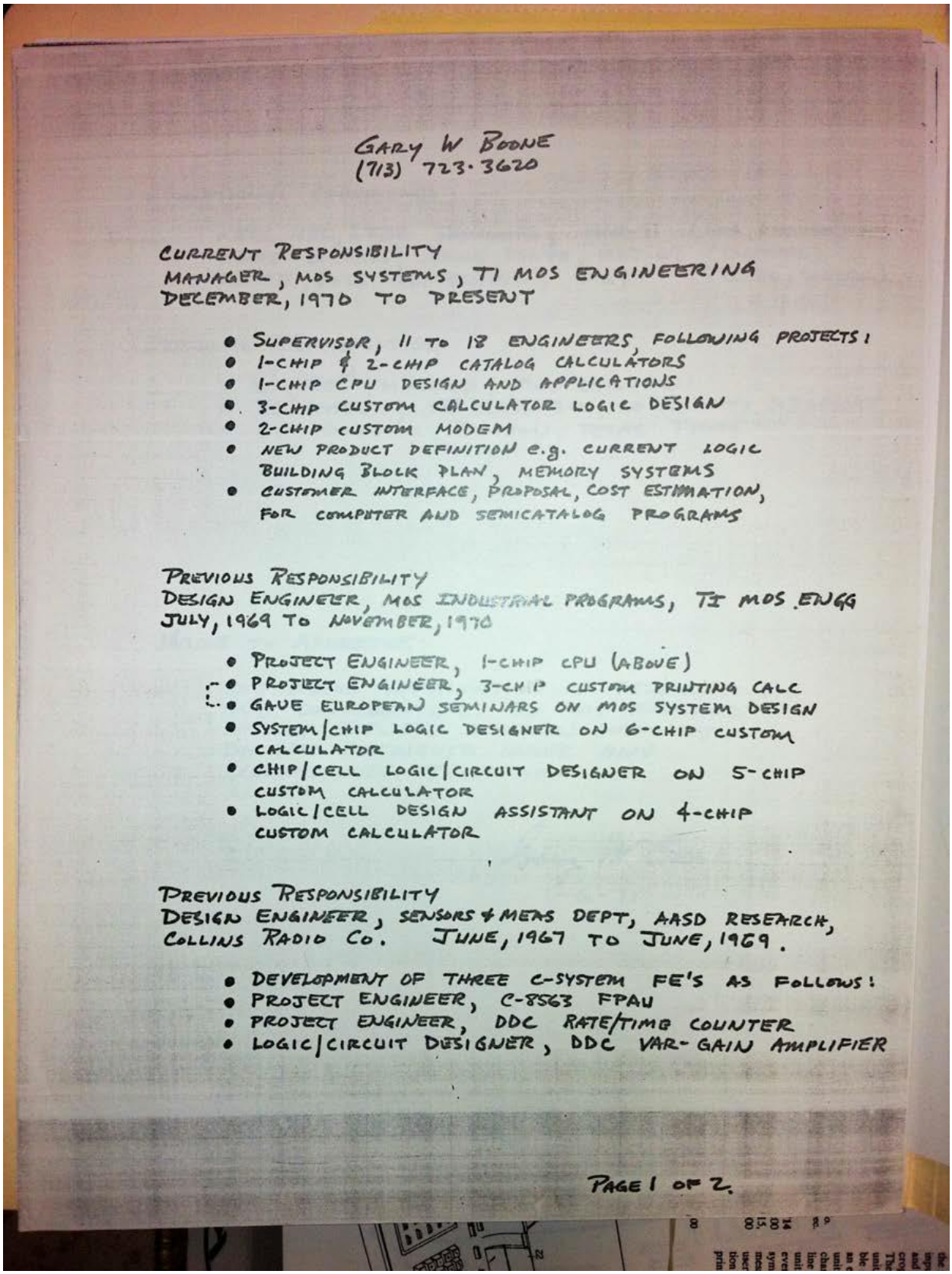
SACHI NAGAE TKO 4
LOU CALCAGNO RTI
MIKE ROTH LOS 1
DAN BAUDOUIN STA
JURGEN KUTH STA
WIM TEUNISSEN FRS 4
PETER JONES TIL 5
GEOFF SHRANK TIF 3
FRAN KRCH STA
JOHN STICH VISITING STA
BOB BURTON STA
JOHN HODGSON STA
BILL PHARES STA
WIDGE HENRION STA

REF/CALCULATORS

EFFECTIVE TODAY MAY 18 RESPONSIBILITY FOR ALL TI CALCULATORS HAS BEEN TRANSFERRED BY HENRION TO GOSSEN. PLEASE SEND ALL INQUIRES PRESENT/ FUTURE STATUS/ SPECIFICATION STANDARD/ CUSTOM TO DICK.

GARY BOONE 3-974 STA

Box 59 cont.



GARY W BOONE
(713) 723-3620

CURRENT RESPONSIBILITY
MANAGER, MOS SYSTEMS, TI MOS ENGINEERING
DECEMBER, 1970 TO PRESENT

- SUPERVISOR, 11 TO 18 ENGINEERS, FOLLOWING PROJECTS:
- 1-CHIP & 2-CHIP CATALOG CALCULATORS
- 1-CHIP CPU DESIGN AND APPLICATIONS
- 3-CHIP CUSTOM CALCULATOR LOGIC DESIGN
- 2-CHIP CUSTOM MODEM
- NEW PRODUCT DEFINITION e.g. CURRENT LOGIC BUILDING BLOCK PLAN, MEMORY SYSTEMS
- CUSTOMER INTERFACE, PROPOSAL, COST ESTIMATION, FOR COMPUTER AND SEMICATALOG PROGRAMS

PREVIOUS RESPONSIBILITY
DESIGN ENGINEER, MOS INDUSTRIAL PROGRAMS, TI MOS ENGG
JULY, 1969 TO NOVEMBER, 1970

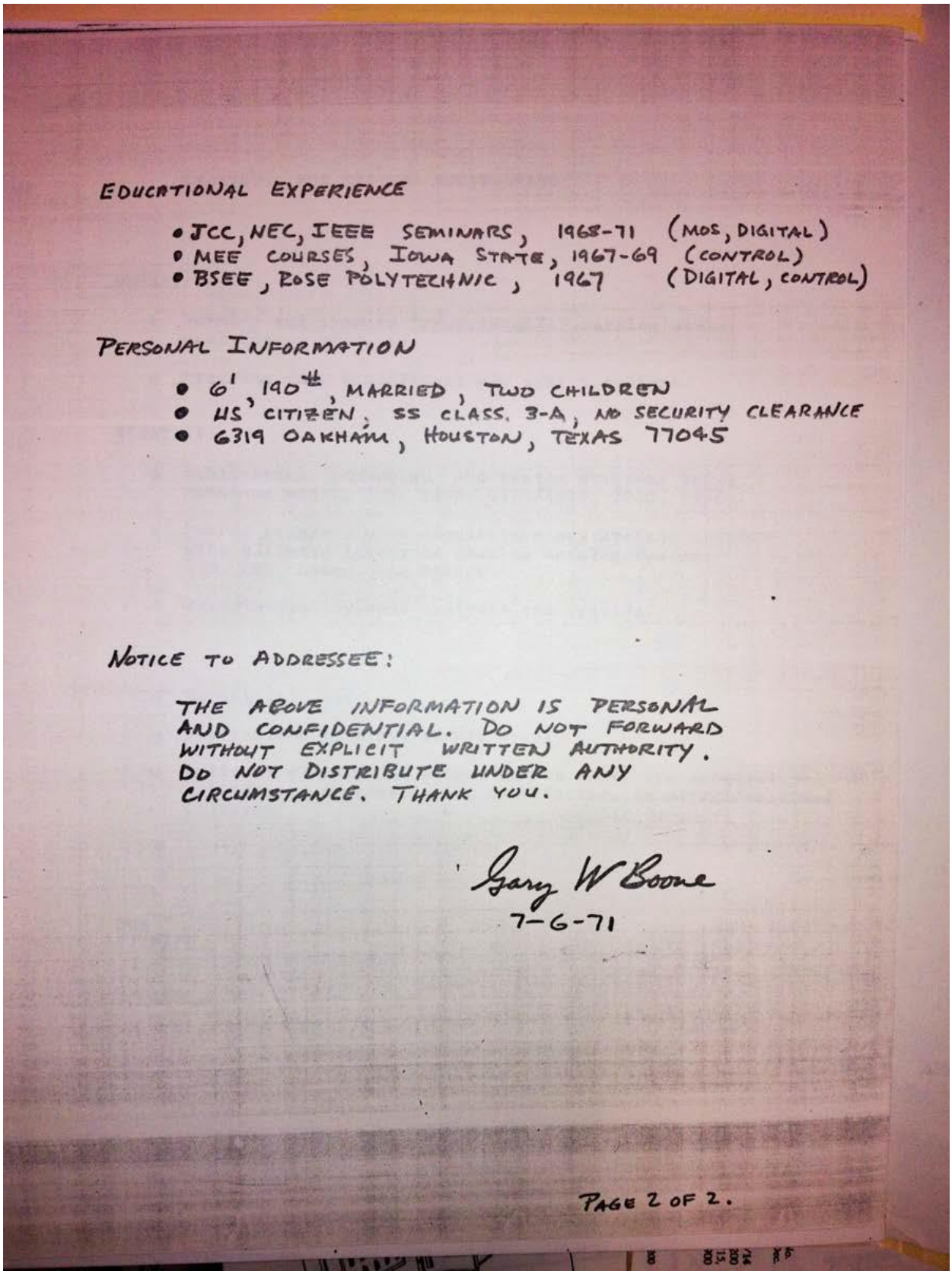
- PROJECT ENGINEER, 1-CHIP CPU (ABOVE)
- PROJECT ENGINEER, 3-CHIP CUSTOM PRINTING CALC
- GAVE EUROPEAN SEMINARS ON MOS SYSTEM DESIGN
- SYSTEM/CHIP LOGIC DESIGNER ON 6-CHIP CUSTOM CALCULATOR
- CHIP/CELL LOGIC/CIRCUIT DESIGNER ON 5-CHIP CUSTOM CALCULATOR
- LOGIC/CELL DESIGN ASSISTANT ON 4-CHIP CUSTOM CALCULATOR

PREVIOUS RESPONSIBILITY
DESIGN ENGINEER, SENSORS & MEAS DEPT, AASD RESEARCH,
COLLINS RADIO CO. JUNE, 1967 TO JUNE, 1969.

- DEVELOPMENT OF THREE C-SYSTEM FE'S AS FOLLOWS:
- PROJECT ENGINEER, C-8563 FPAU
- PROJECT ENGINEER, DDC RATE/TIME COUNTER
- LOGIC/CIRCUIT DESIGNER, DDC VAR-GAIN AMPLIFIER

PAGE 1 OF 2.

Box 59 cont.



EDUCATIONAL EXPERIENCE

- JCC, NEC, IEEE SEMINARS, 1968-71 (MOS, DIGITAL)
- MEE COURSES, IOWA STATE, 1967-69 (CONTROL)
- BSEE, ROSE POLYTECHNIC, 1967 (DIGITAL, CONTROL)

PERSONAL INFORMATION

- 6', 190#, MARRIED, TWO CHILDREN
- US CITIZEN, SS CLASS. 3-A, NO SECURITY CLEARANCE
- 6319 OAKHAM, HOUSTON, TEXAS 77045

NOTICE TO ADDRESSEE:

THE ABOVE INFORMATION IS PERSONAL AND CONFIDENTIAL. DO NOT FORWARD WITHOUT EXPLICIT WRITTEN AUTHORITY. DO NOT DISTRIBUTE UNDER ANY CIRCUMSTANCE. THANK YOU.

Gary W Boone
7-6-71

PAGE 2 OF 2.

Box 59 cont.

CHARTER: MOS SYSTEMS ENGINEERING

OBJECTIVE:

- Develop and promote "Programmable" catalog and semi-custom products.
- Programs with significant new system content.

STRATEGY:

- Publication, promotion, and custom programs using existing parts, I.E. 1802, 1795/4019, 2000, 2200.
- Custom programs with significatn new systems content with ultimate intent to develop catalog systems E.G. CPU, Modem, Dig Filter.
- Pre-proposal systems analysis and opinion.

TEST:

- Marketplace MOSE.
- Penetration into new market areas.
- Delivery of parts in budget and on time, wrt original estimates, and considering such factors as actual/presumed resources.

GWB
7/19/71

Box 59 cont.

MEMORANDUM
12 January 1971

MOSE 71/103

TO: Don Benefiel

COPY: All MOS Personnel

FROM: Widge Henrion

SUBJECT: MOS Engineering Organization

Effective immediately, the following organization is established.

An MOS System Engineering program is formed under Gary Boone. It is the responsibility of this program to define all systems and provide the definition of new catalog circuits. A prime responsibility of this group is to interface with the customer and provide support to Marketing.

The Industrial and Consumer Design programs will be managed by Dick Gossen. Dick will be responsible for the programs shown on the attached organization chart. Kent Andres will be project engineer on the new Computer Design calculator. Joe Sexton will be responsible for the transfer of the programmable business to the Planning and Artwork program. After this has been accomplished, he will be reassigned to one of the design activities.

Dr. Clinton Kuo will be manager of the Catalog Circuits program. This will include the design of RAMs, Shift Registers, programmable circuits, and the super RAMs.

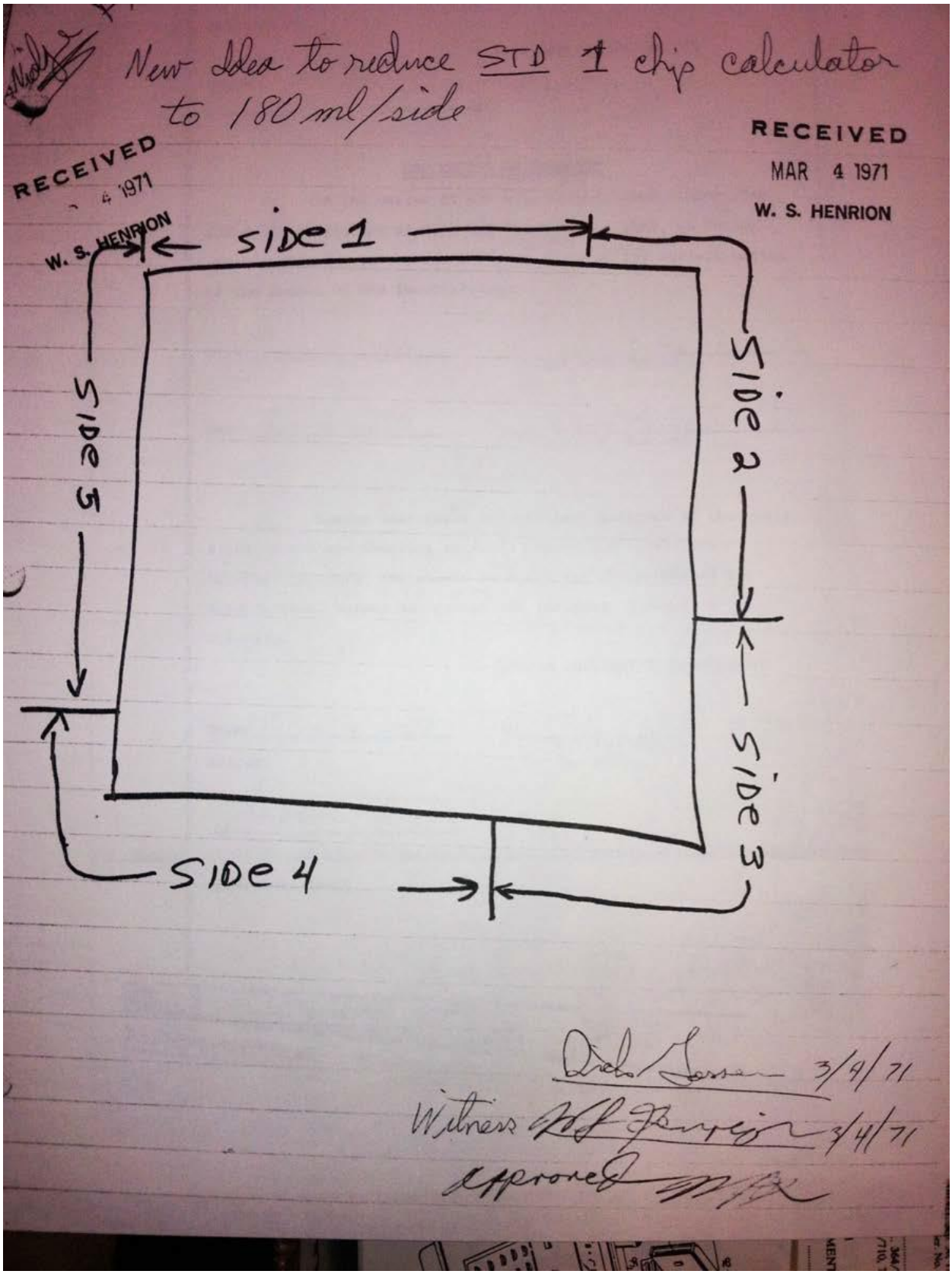
Each of the program managers will be establishing detailed organizations and charters within the next week.

Your assistance and cooperation during the transition phase will be appreciated.

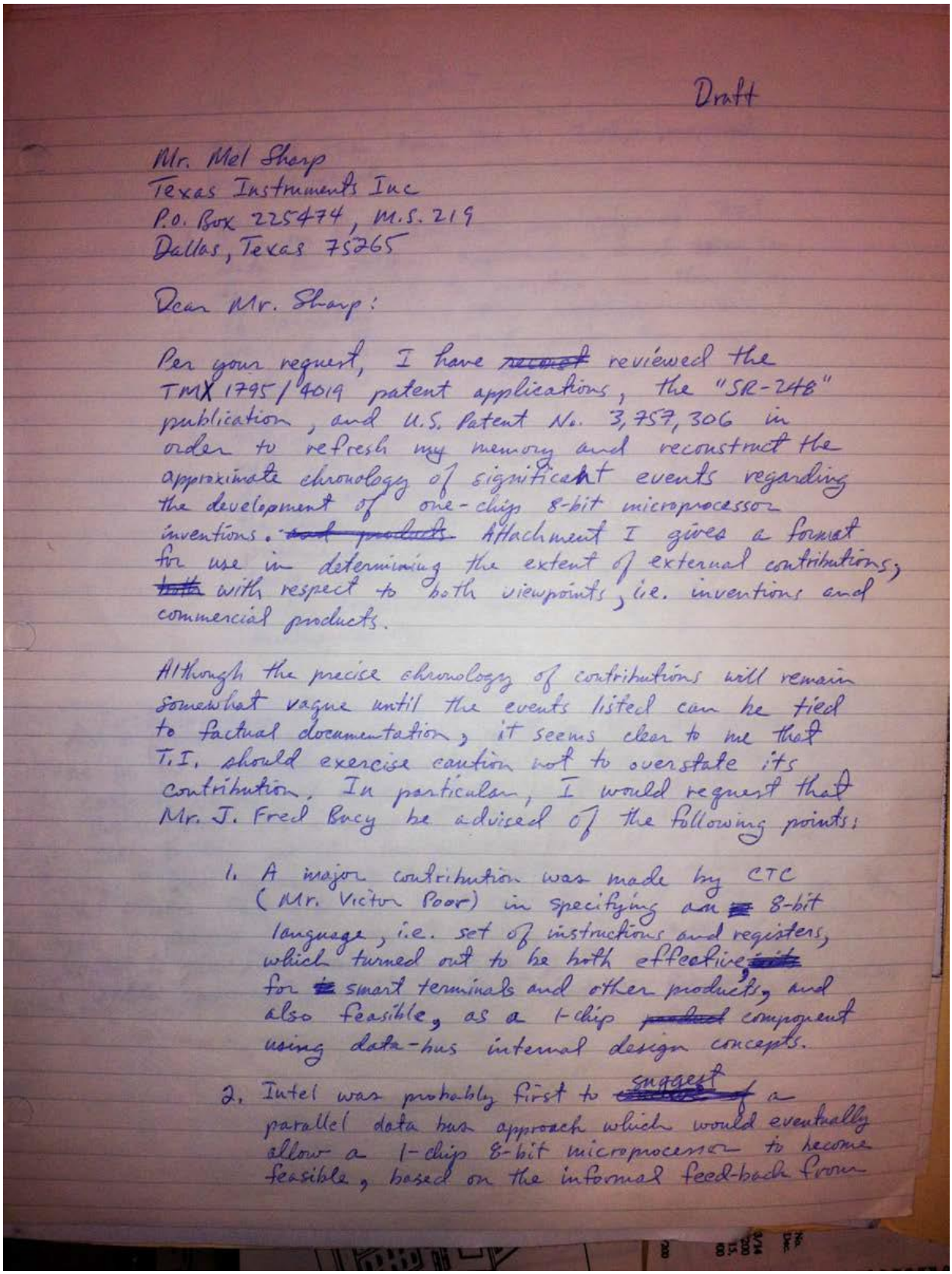
Widge Henrion

WSH:tb
Attachment

Box 59 cont.


New Idea to reduce STD 1 chip calculator
to 180 mil/side
RECEIVED
MAR 4 1971
W. S. HENRION
RECEIVED
4 1971
W. S. HENRION
side 1
side 2
side 3
side 4
side 5
3/4/71
Witness
3/4/71
approved

Box 59 cont.



Draft

Mr. Mel Sharp
Texas Instruments Inc
P.O. Box 225474, M.S. 219
Dallas, Texas 75265

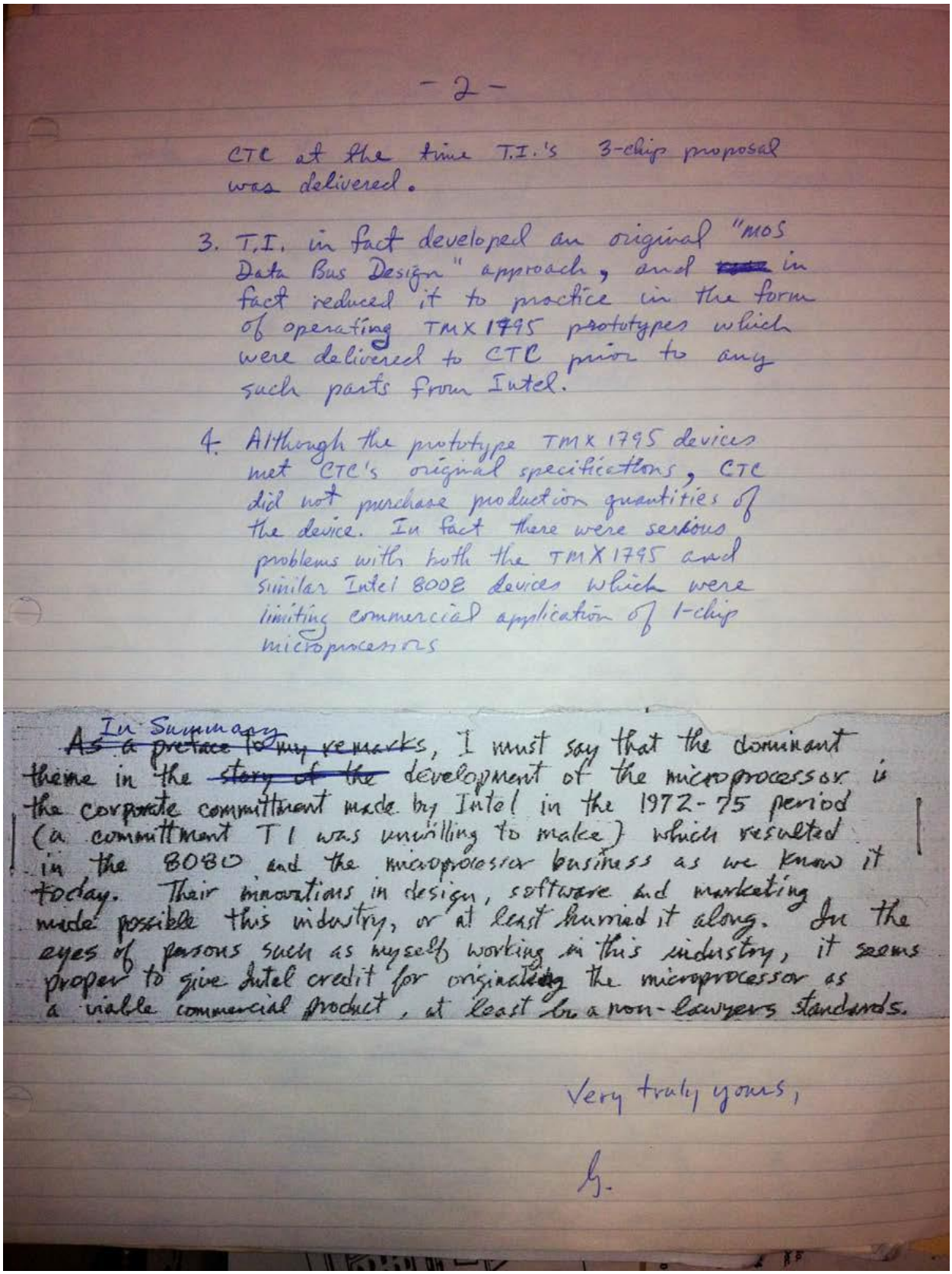
Dear Mr. Sharp:

Per your request, I have ~~recent~~ reviewed the TMX 1795/4019 patent applications, the "SR-246" publication, and U.S. Patent No. 3,757,306 in order to refresh my memory and reconstruct the approximate chronology of significant events regarding the development of one-chip 8-bit microprocessor inventions. ~~and products~~ Attachment I gives a format for use in determining the extent of external contributions, ~~both~~ with respect to both viewpoints, i.e. inventions and commercial products.

Although the precise chronology of contributions will remain somewhat vague until the events listed can be tied to factual documentation, it seems clear to me that T.I. should exercise caution not to overstate its contribution. In particular, I would request that Mr. J. Fred Bucy be advised of the following points:

1. A major contribution was made by CTC (Mr. Victor Poor) in specifying an ~~=~~ 8-bit language, i.e. set of instructions and registers, which turned out to be both effective ~~with~~ for ~~=~~ smart terminals and other products, and also feasible, as a 1-chip ~~product~~ component using data-bus internal design concepts.
2. Intel was probably first to ~~suggest~~ a parallel data bus approach which would eventually allow a 1-chip 8-bit microprocessor to become feasible, based on the informal feed-back from

Box 59 cont.



-2-

CTC at the time T.I.'s 3-chip proposal was delivered.

3. T.I. in fact developed an original "MOS Data Bus Design" approach, and ~~[illegible]~~ in fact reduced it to practice in the form of operating TMX 1795 prototypes which were delivered to CTC prior to any such parts from Intel.

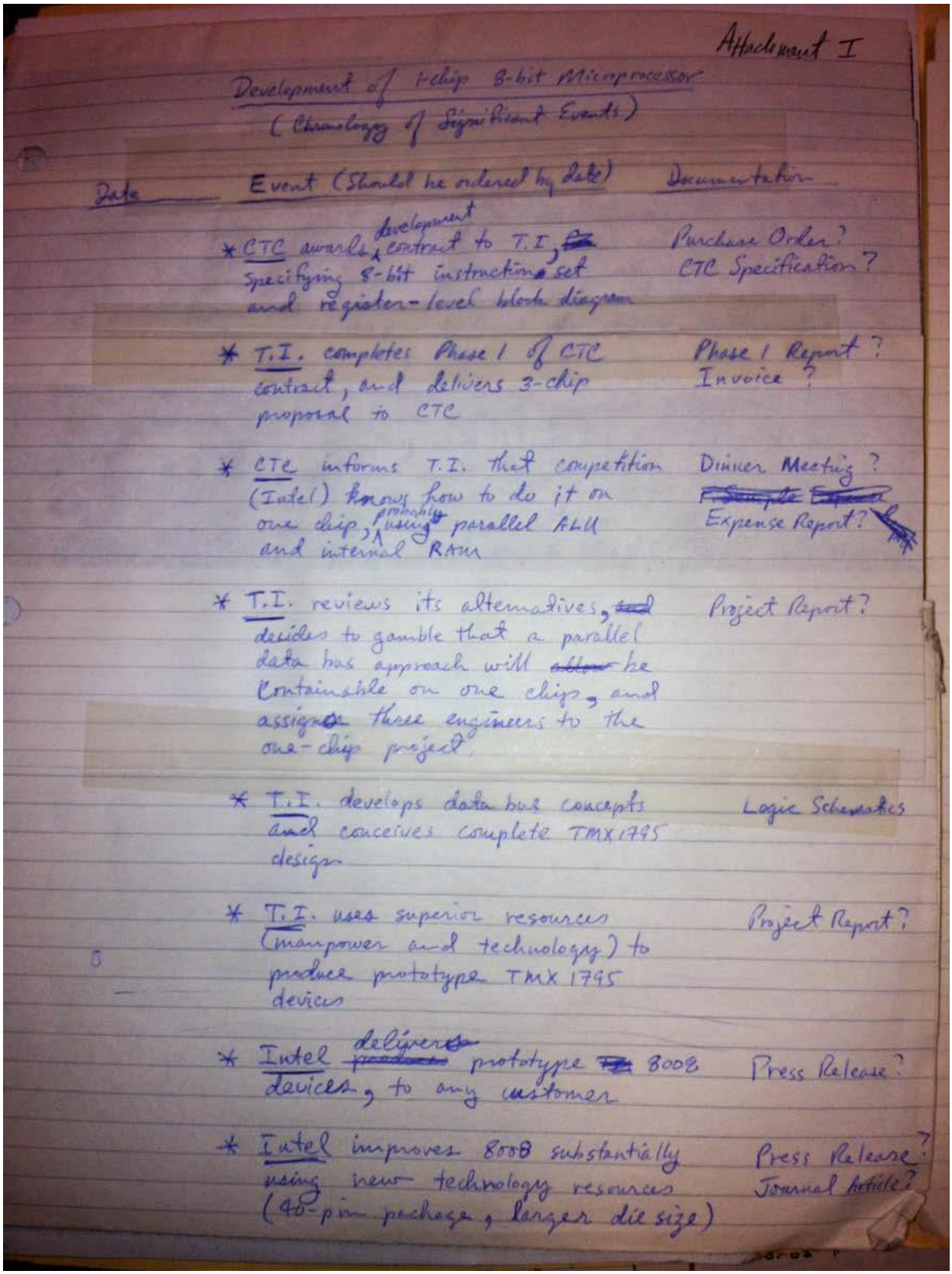
4. Although the prototype TMX 1795 devices met CTC's original specifications, CTC did not purchase production quantities of the device. In fact there were serious problems with both the TMX 1795 and similar Intel 8008 devices which were limiting commercial application of 1-chip microprocessors

~~As a preface to my remarks~~ In Summary, I must say that the dominant theme in the ~~story of the~~ development of the microprocessor is the corporate committment made by Intel in the 1972-75 period (a committment TI was unwilling to make) which resulted in the 8080 and the microprocessor business as we know it today. Their innovations in design, software and marketing made possible this industry, or at least hurried it along. In the eyes of persons such as myself working in this industry, it seems proper to give Intel credit for originating the microprocessor as a viable commercial product, at least by a non-lawyers standards.

Very truly yours,

G.

Box 59 cont.



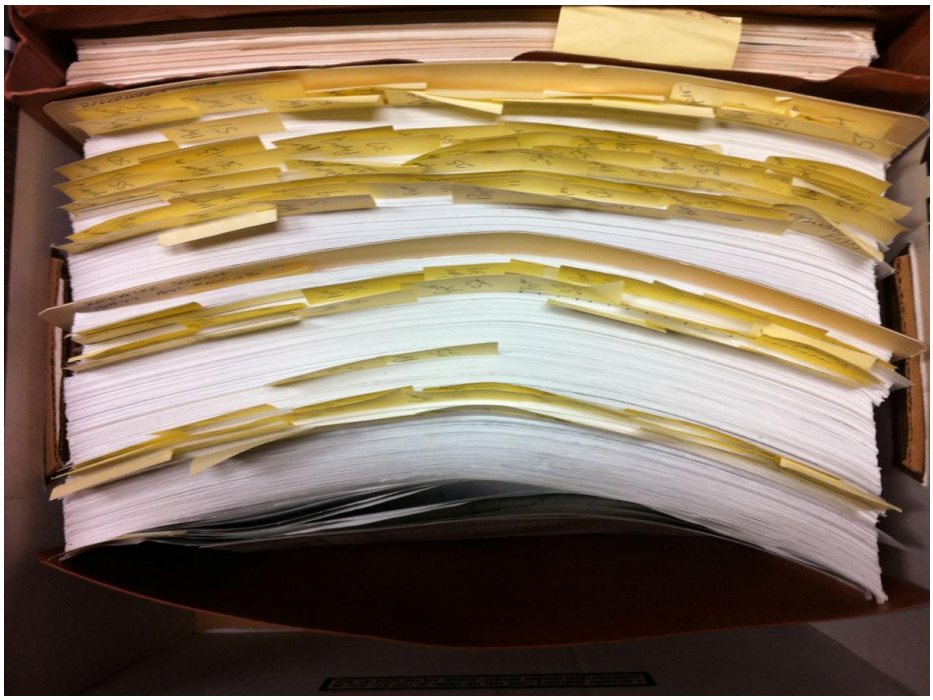
Attachment I

Development of i-chip 8-bit Microprocessor
(Chronology of Significant Events)

Date	Event (Should be ordered by date)	Documentation
	* CTC awards development contract to T.I., specifying 8-bit instruction set and register-level block diagram	Purchase Order? CTC Specification?
	* T.I. completes Phase I of CTC contract, and delivers 3-chip proposal to CTC	Phase I Report? Invoice?
	* CTC informs T.I. that competition (Intel) knows how to do it on one chip, probably using parallel ALU and internal RAM	Dinner Meeting? ~~Example~~ Expense Report?
	* T.I. reviews its alternatives, and decides to gamble that a parallel data bus approach will be containable on one chip, and assigns three engineers to the one-chip project.	Project Report?
	* T.I. develops data bus concepts and conceives complete TMX1795 design	Logic Schematics
	* T.I. uses superior resources (manpower and technology) to produce prototype TMX 1795 devices	Project Report?
	* Intel delivers ~~produces~~ prototype ~~the~~ 8008 devices, to any customer	Press Release?
	* Intel improves 8008 substantially using new technology resources (40-pin package, larger die size)	Press Release? Journal Article?

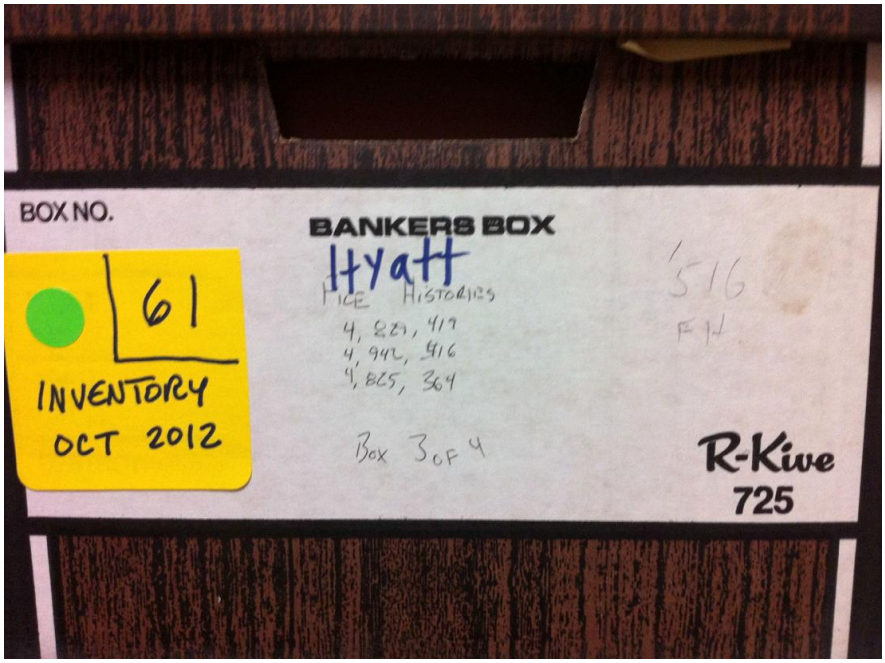
Box 60

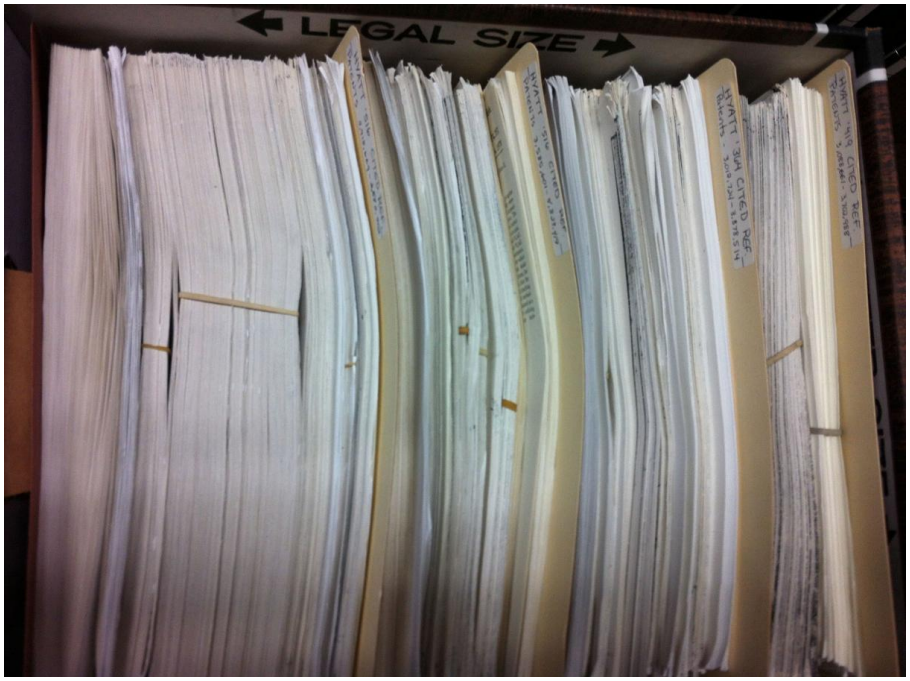
Hyatt file histories. Gary Boone original file history from 1989.



Box 61

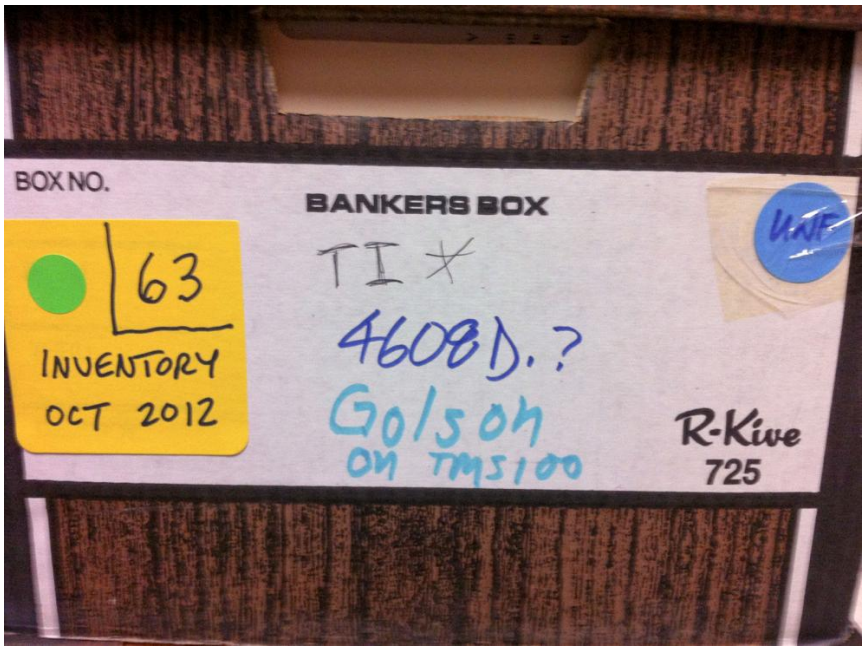
Cited references for various Hyatt patents.





Box 63

Correspondence from Gary Boone to TI, some having to do with 1989 Golson report. Couple of folders related to “History of Custom MOS Design” presentation by Steve Golson in 2000. Email from Gary Boone to Jerry Van regarding *Dallas Morning News* article Feb 4 2001 re Michael Cochran.

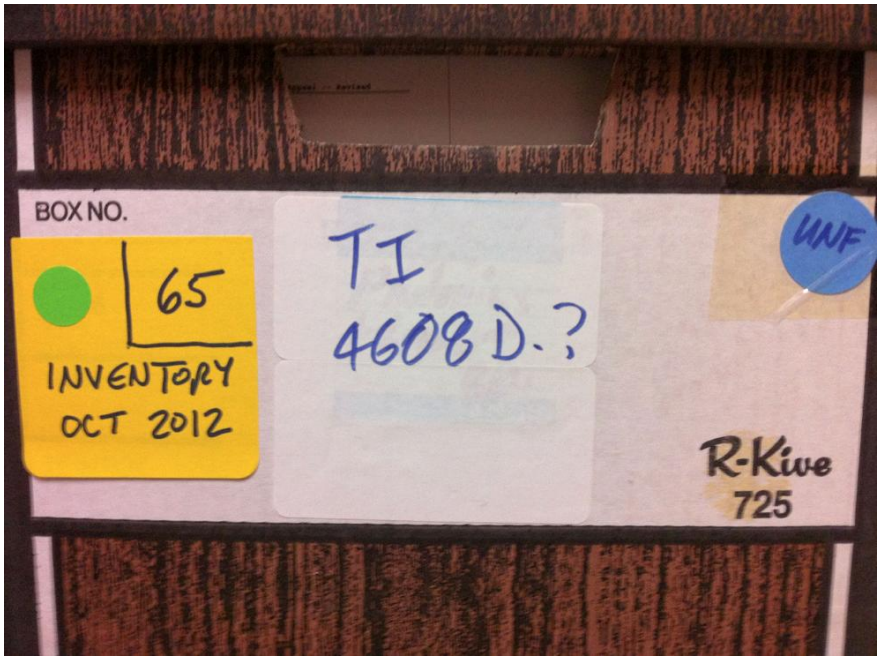


Box 64

Hyatt v Boone documents. TI v Zenith exhibits and documents, some marked “TI Confidential via Protective Order.”
Proposal from TI to Bowmar for 2-chip calculator.

Box 65

Lots of TI materials. Hyatt v Boone. Magazine articles. Datapoint datasheets and information. Original material on TMS 0100, TMS 0200. TI 1971 Annual Report re annual meeting of stockholders April 19, 1972.



Box 66

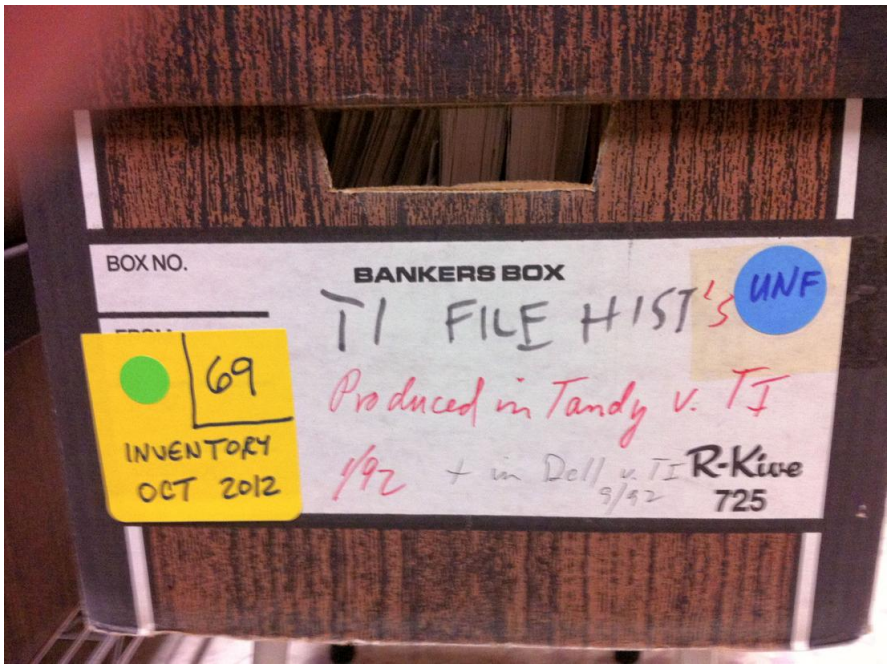
Much TI materials. TMC 1795 design documents and artifacts. Material re 1996 TMC 1795 demo (codename Verdi).
Correspondence with Karen Mathews and University Video. Hyatt v Boone material.

Box 68

Early TI material ca. early 1990s. Notes from 1990, 1992 meetings with Vic Poor.
Folder marked Kantowski with copy of large “Single-chip CPU” drawing. Hyatt v Boone.
***Note that about half of the contents of this box were returned to the donor and are not in the CHM collection*.**

Box 69

TI file histories.



Box 70

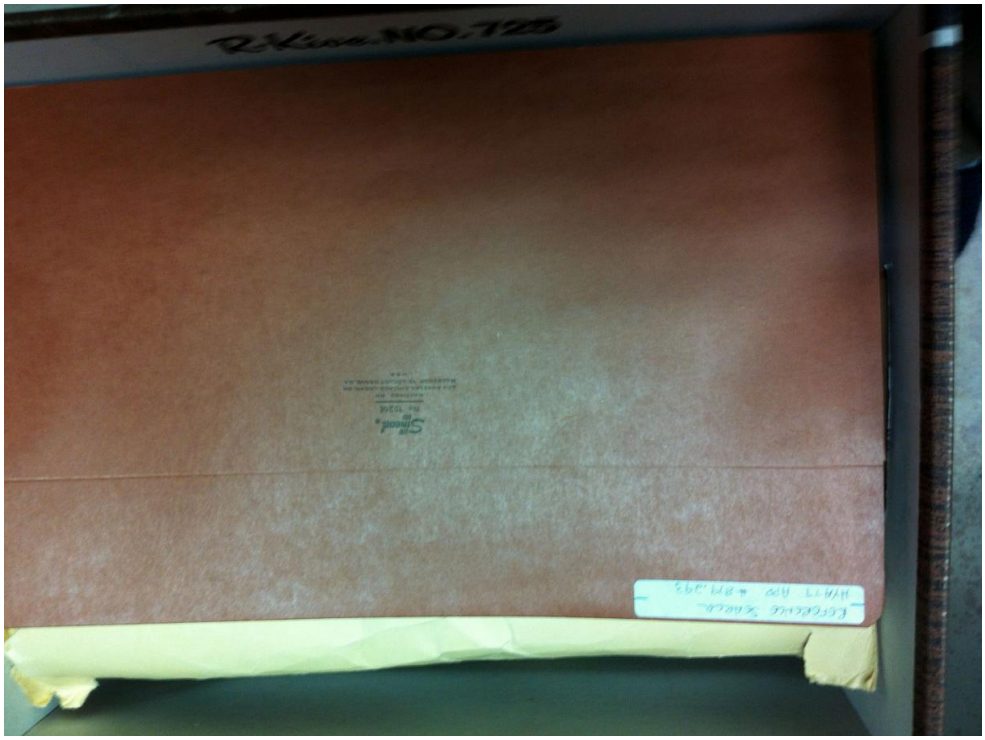
TI file history and material re patent applications. Correspondence with Lee Boysel including draft of Lee's article reciting the history of the microprocessor.

Box 71

TI patent file histories. Hyatt articles.

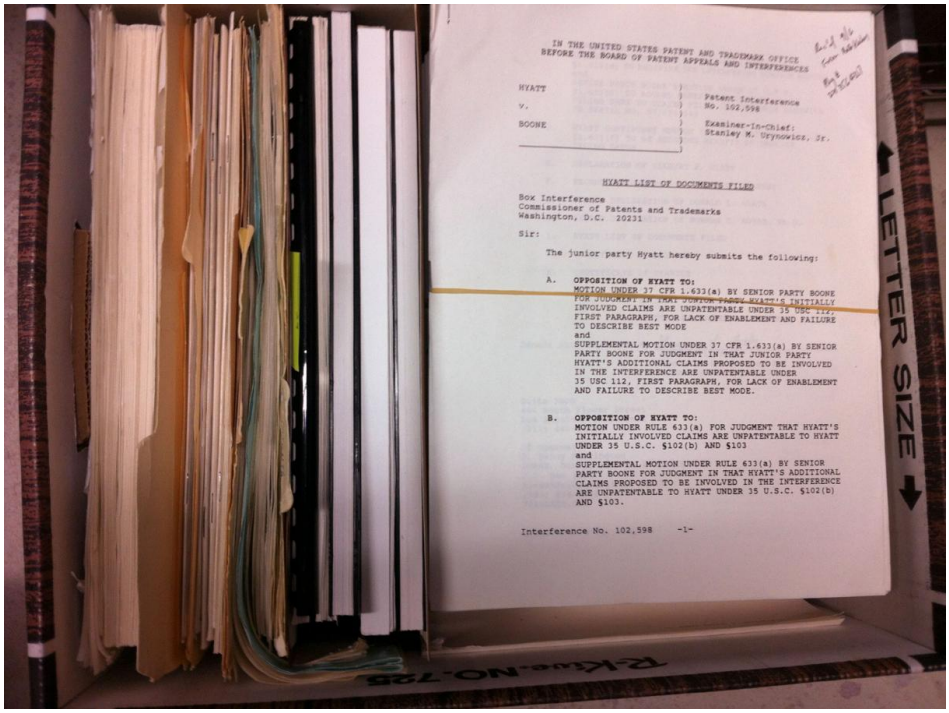
Box 72

Hyatt file histories with references from inventor Lee.



Box 73

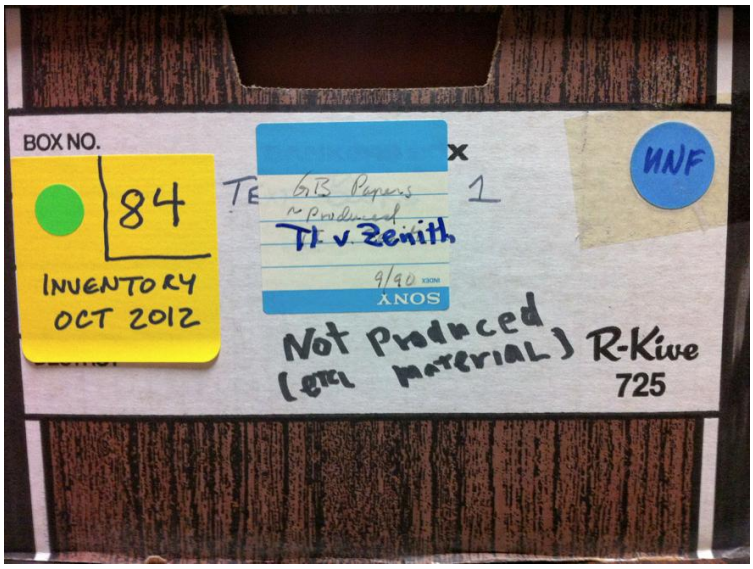
Hyatt v Boone. Bunting v Boone (early Bowmar interference) including original declarations. Early TI materials. TI stockholder's meeting reports (not 1972). Letter from Gary Boone at Litronix to TI as Litronix was shutting down.

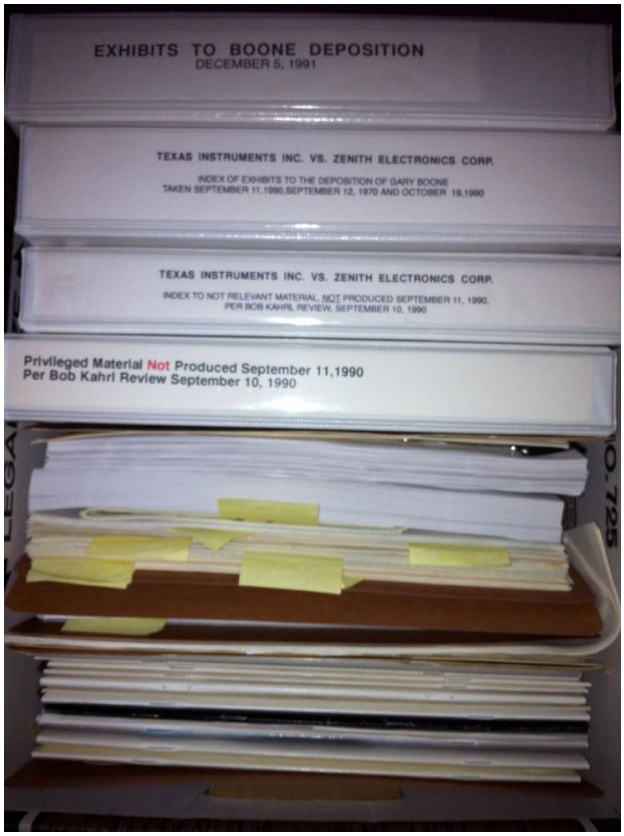


.

Box 84

TI v Zenith. TI v Daewoo (Dec 1991). Possible duplicates of material in other boxes. Prior art references (e.g., Maurice Wilkes paper). Folder marked “Calculator material” contains original TI documents ca. 1970. Folder marked “Intel 1201–8008 specs” appears to be documents about TI patent applications. Folder with newspaper clippings about a Boone-Cochran patent being issued.

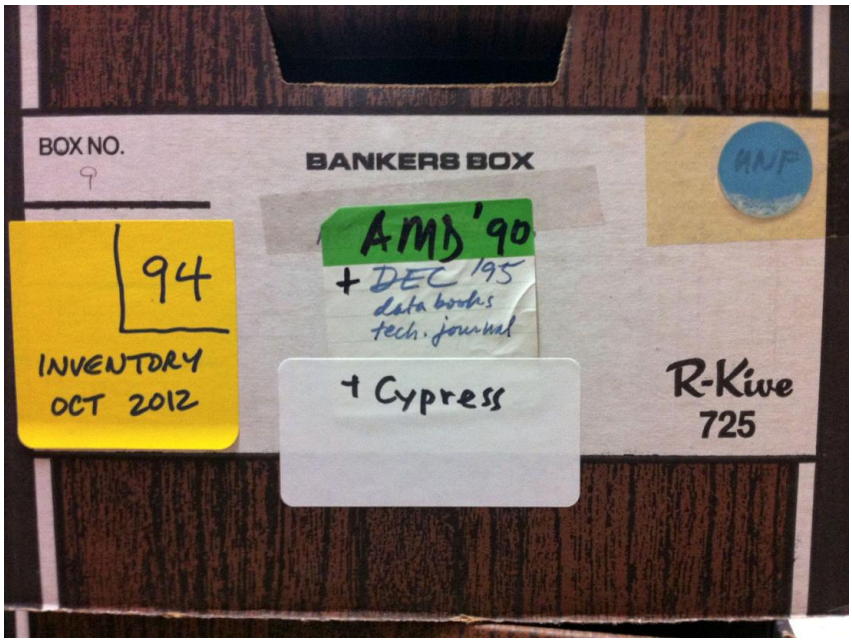




Box 94

AMD, Digital, Cypress databooks.

Note that most materials in this box were returned to the donor and are not in the CHM collection.



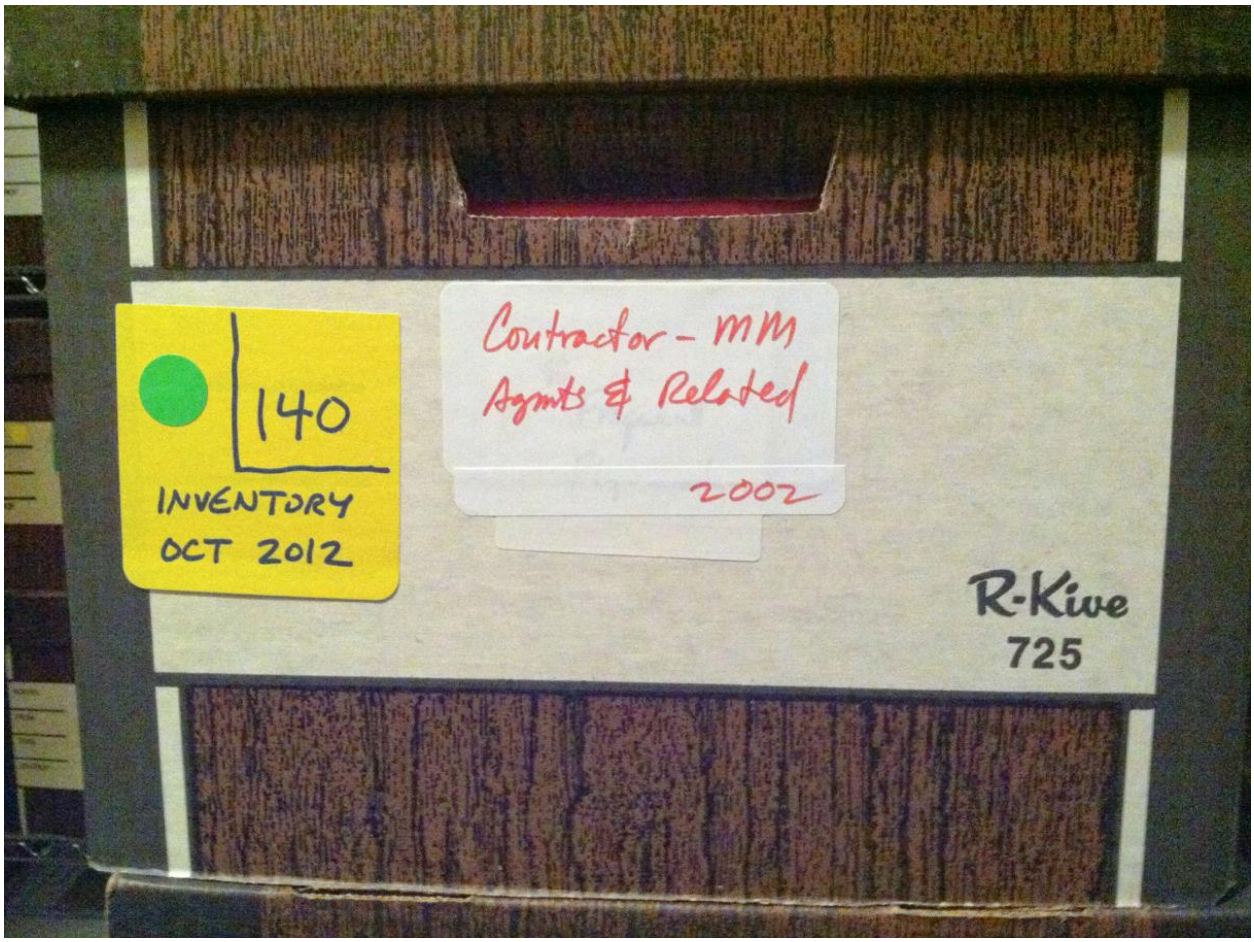
Box 125

Personal financial records and documents. ***Note that all items except for a folder containing information about a 1996 IEEE oral history with Boone were returned to the donor***.

Box 140

Contracts and documents regarding Micro Methods subcontractors. Folder marked “UVC–MM 11/13-19/96” contains contract with University Video Communications (UVC) re TMC 1795 video project. Copies of Ford and Intel agreements on EEC-IV (December 1979). File on Nintendo v variety of companies.

Note that two items in this box were returned to the donor and are not in the CHM collection.



Box 140 cont.


CONTRACT
Agreement ML-MMI
Westberg, Thomas E.
Agreements (Archive)

Box 140 cont.

Box 140 cont.

UNIVERSITY VIDEO COMMUNICATIONS

BILLING SCHEDULE AND TERMS

Micro Methods

For videotaping a demonstration of the TI 1795 Microprocessor at the Fairmont Hotel in San Jose, October 22, 1996:

Gary Boone, presenter

Total	$2,000.00

INVOICE SCHEDULE (TERMS: NET 15 DAYS)

FIRST PAYMENT	**On project commencement** Date: October 22, 1996	$2,000.00

Gary Boone holds control of presentation content. University Video Communications is performing the above services for Micro Methods on a "work for hire" basis and will not have rights to distribute or use the resulting videotape unless another agreement is formed by Micro Methods and UVC in the future. The master tape will be sent to UVC's producer, Larry Mondi, for review and recommendations for editing. A time-coded VHS copy will be sent to Karen Mathews and Gary Boone for their review.

Gary Boone 11/13/96 (date)
Gary Boone
Micro Methods

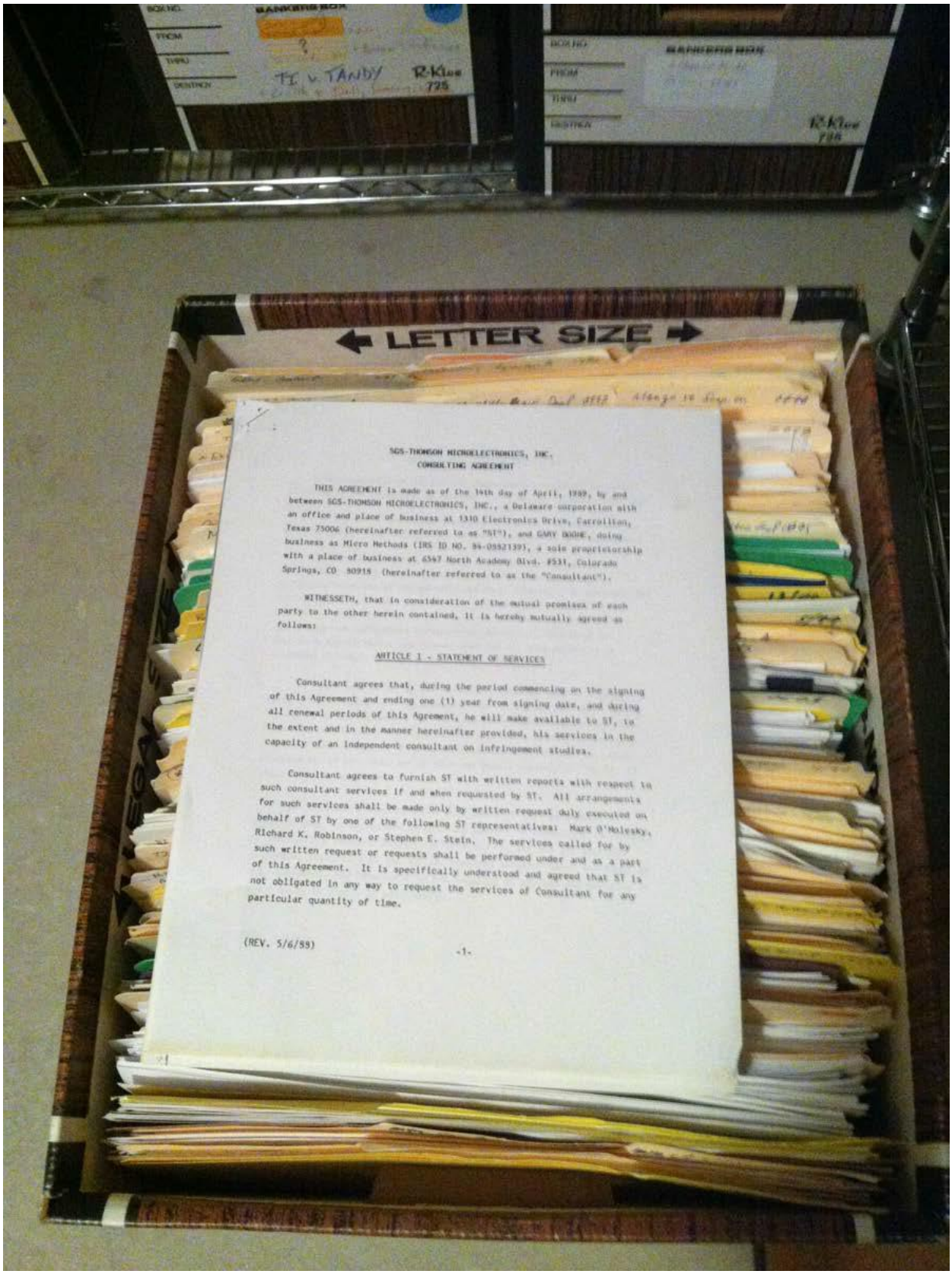
Karen Mathews 11.19.96 (date)
Karen Mathews
University Video Communications

3130 Impala Drive, 2nd Floor, San Jose, CA 95117 • P.O. Box 2666, Stanford, CA 94309 USA
(408) 379-0100 • Fax (408) 379-2300

Box 141

Contracts with Gary Boone dba Micro Methods working for clients (back to ca. 1983). Folder labeled “UVC proposal 0996” has correspondence between Gary and UVC regarding TMC 1795 project.

Box 141 cont.



SGS-THOMSON MICROELECTRONICS, INC.
CONSULTING AGREEMENT

THIS AGREEMENT is made as of the 14th day of April, 1989, by and between SGS-THOMSON MICROELECTRONICS, INC., a Delaware corporation with an office and place of business at 1310 Electronics Drive, Carrollton, Texas 75006 (hereinafter referred to as "ST"), and GARY BOONE, doing business as Micro Methods (IRS ID NO. 84-09521393), a sole proprietorship with a place of business at 6567 North Academy Blvd. #531, Colorado Springs, CO 80918 (hereinafter referred to as the "Consultant").

WITNESSETH, that in consideration of the mutual promises of each party to the other herein contained, it is hereby mutually agreed as follows:

ARTICLE I - STATEMENT OF SERVICES

Consultant agrees that, during the period commencing on the signing of this Agreement and ending one (1) year from signing date, and during all renewal periods of this Agreement, he will make available to ST, to the extent and in the manner hereinafter provided, his services in the capacity of an independent consultant on infringement studies.

Consultant agrees to furnish ST with written reports with respect to such consultant services if and when requested by ST. All arrangements for such services shall be made only by written request duly executed on behalf of ST by one of the following ST representatives: Mark O'Holesky, Richard K. Robinson, or Stephen E. Stein. The services called for by such written request or requests shall be performed under and as a part of this Agreement. It is specifically understood and agreed that ST is not obligated in any way to request the services of Consultant for any particular quantity of time.

(REV. 5/6/89)

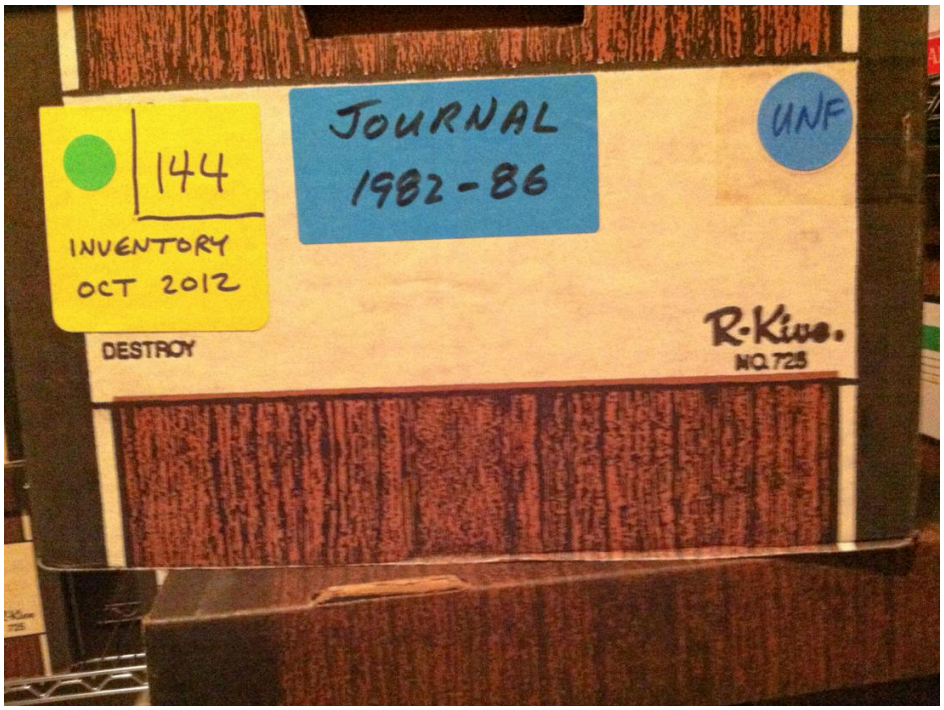
-1-

Box 141 cont.


LETTER SIZE
Draft MM-MWE Dual
MWE Proposal
Microsoft
MM-PMI Agreement
Protective Order
Contracts
SPE Agreement/etc.
1992 Contracts
Agreements
TI/GB Contract
TI AGREEMENTS
RELATED CORRESP.
Agreement 0603

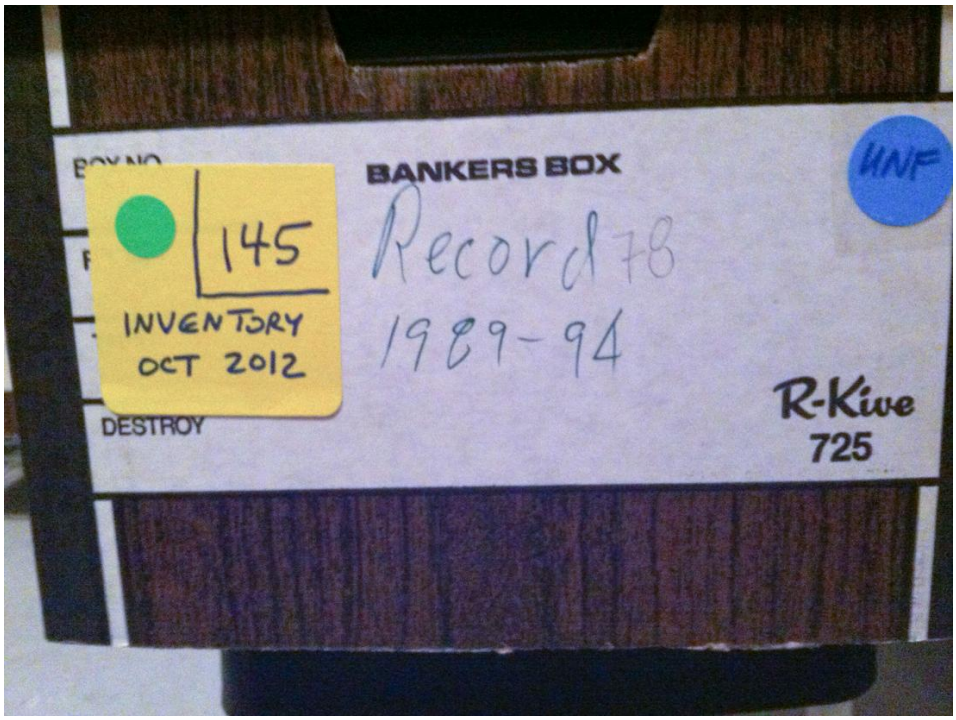
Box 144

Gary Boone personal diaries and journals 1982–ca. 1986.



Box 145

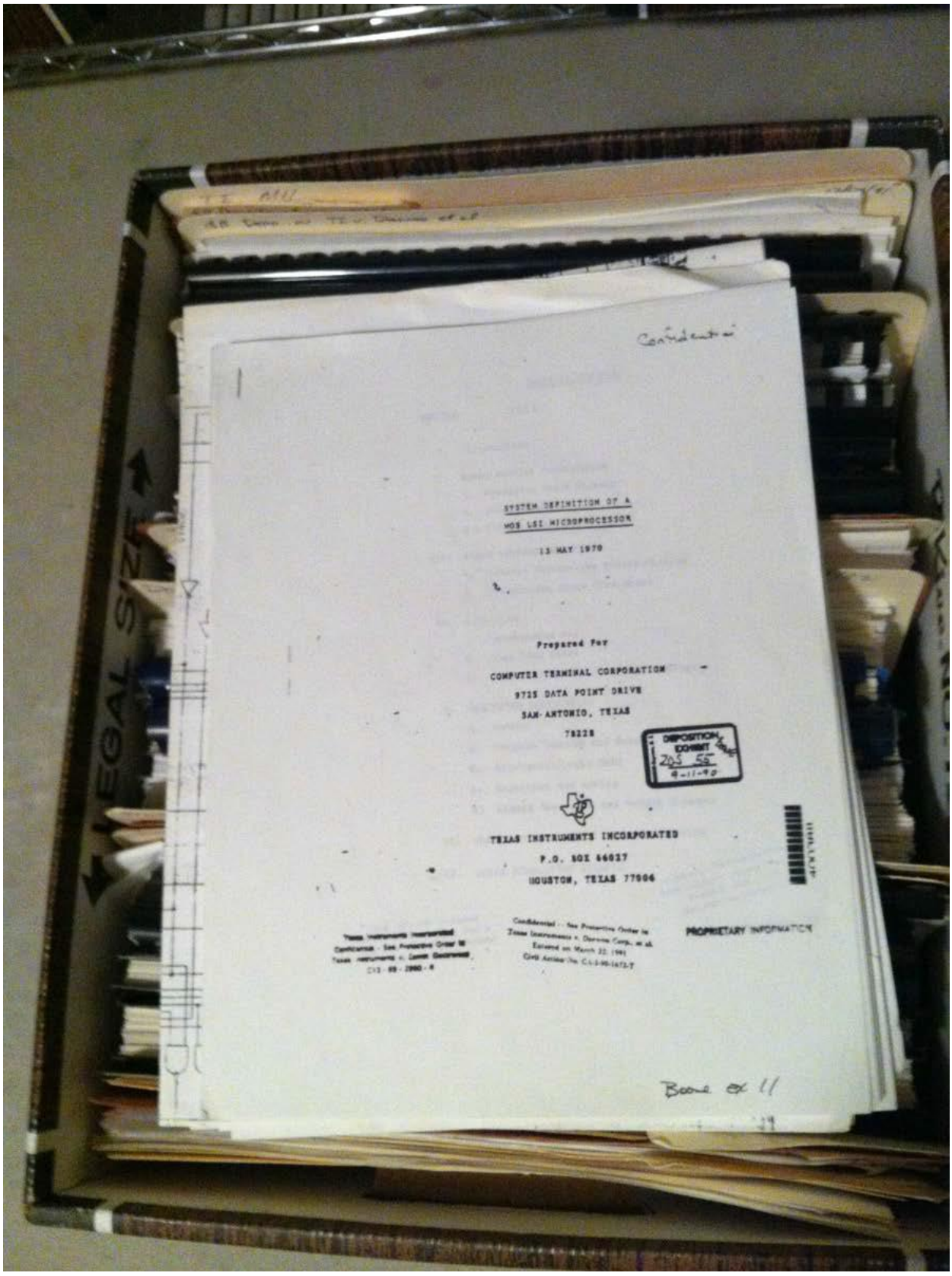
Gary Boone personal diaries and journals May 13, 1989– November 30, 1994.



Box 153

Paper copies of Gary Boone depositions and subpoenas. TI v Zenith. TI v Dell. TI v Grid and Tandy. TI v Daewoo.
Some exhibits.

Box 153 cont.

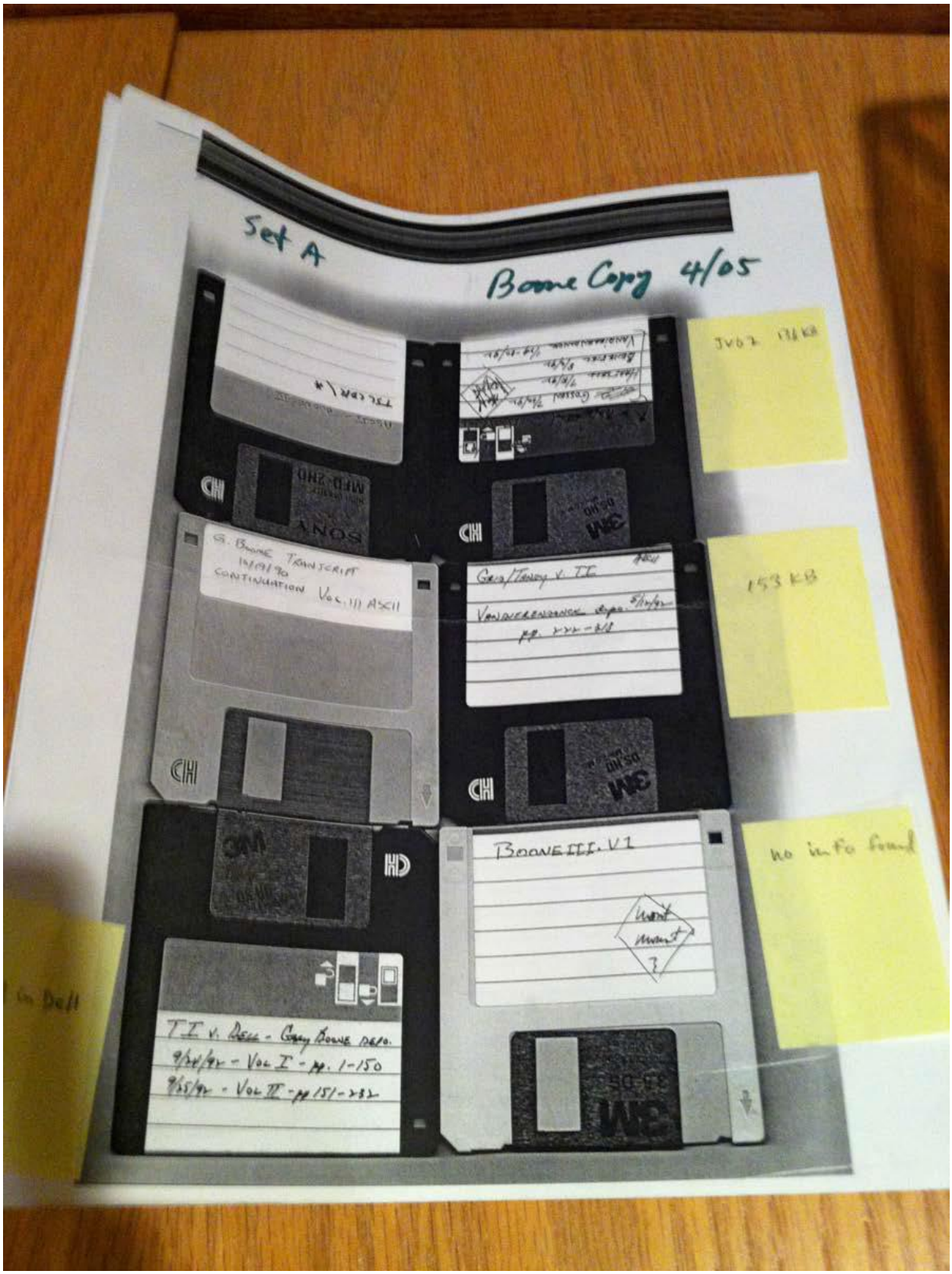

LEGAL SIZE
Confidential
SYSTEM DEFINITION OF A
MOS LSI MICROPROCESSOR
15 MAY 1970
Prepared For
COMPUTER TERMINAL CORPORATION
9725 DATA POINT DRIVE
SAN ANTONIO, TEXAS
78228
DEPOSITION EXHIBIT
205 58
4-11-90
TEXAS INSTRUMENTS INCORPORATED
P.O. BOX 66027
HOUSTON, TEXAS 77006
PROPRIETARY INFORMATION
Boone ex 11

Box 153 cont.

Box 158

Deposition and other files from TI litigation. Various media: floppies, Zip drives, SyQuest drive. Paper index of media. VHS check copy of UVC taping from Microprocessor Forum in 1996. Additional taping by Gary Boone of TMX 1795 demo unit. Zip drive containing scans of TMX 1795, TMS 0100.

Box 158 cont.

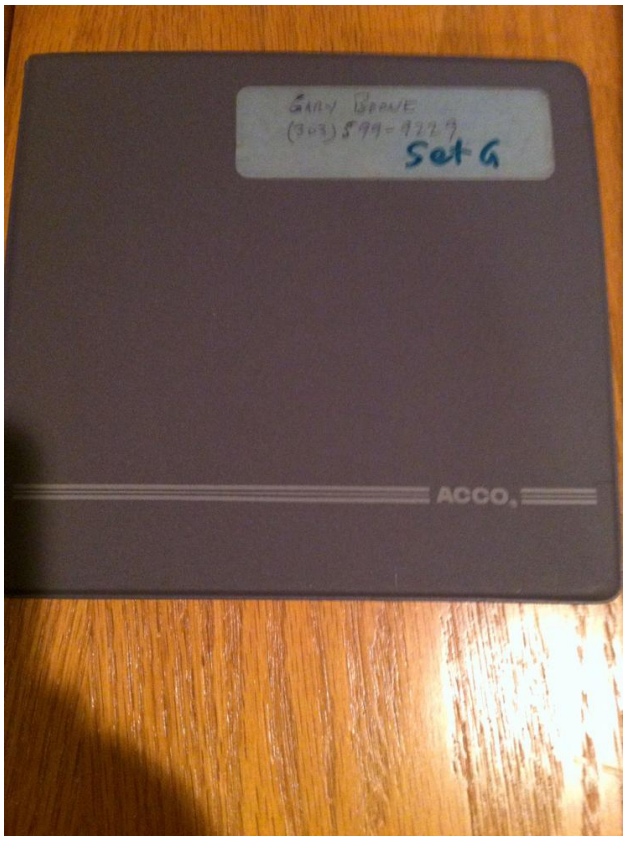

Set A
Boone Copy 4/05
153 KB
No info found
BOONE III. V1
TI v. DELL - GARY BOONE DEMO.
9/24/92 - VOL I - PP. 1-150
9/25/92 - VOL II - PP 151-282

Box 158 cont.


Window Dub
[UVC96]
Window Dub
[UVC96]
COPY OF 1795 DEMO VIDEO MASTER
T120SONY K2284166
VHS
TMC 1795 DEMO MICROPROCESSOR EXPO TAPE #2
SONY
VHS
TMC 1795 Demo Microprocessor Expo TAPE #1
SONY
VHS
CHECK-OUT RUN WITH 1795 DEMO SYSTEM 10/19/96
SONY
SONY
1795 DEMO VIDEO
10/19/96 MASTER TAPE
VHS

Box 158 cont.

Box 158 cont.

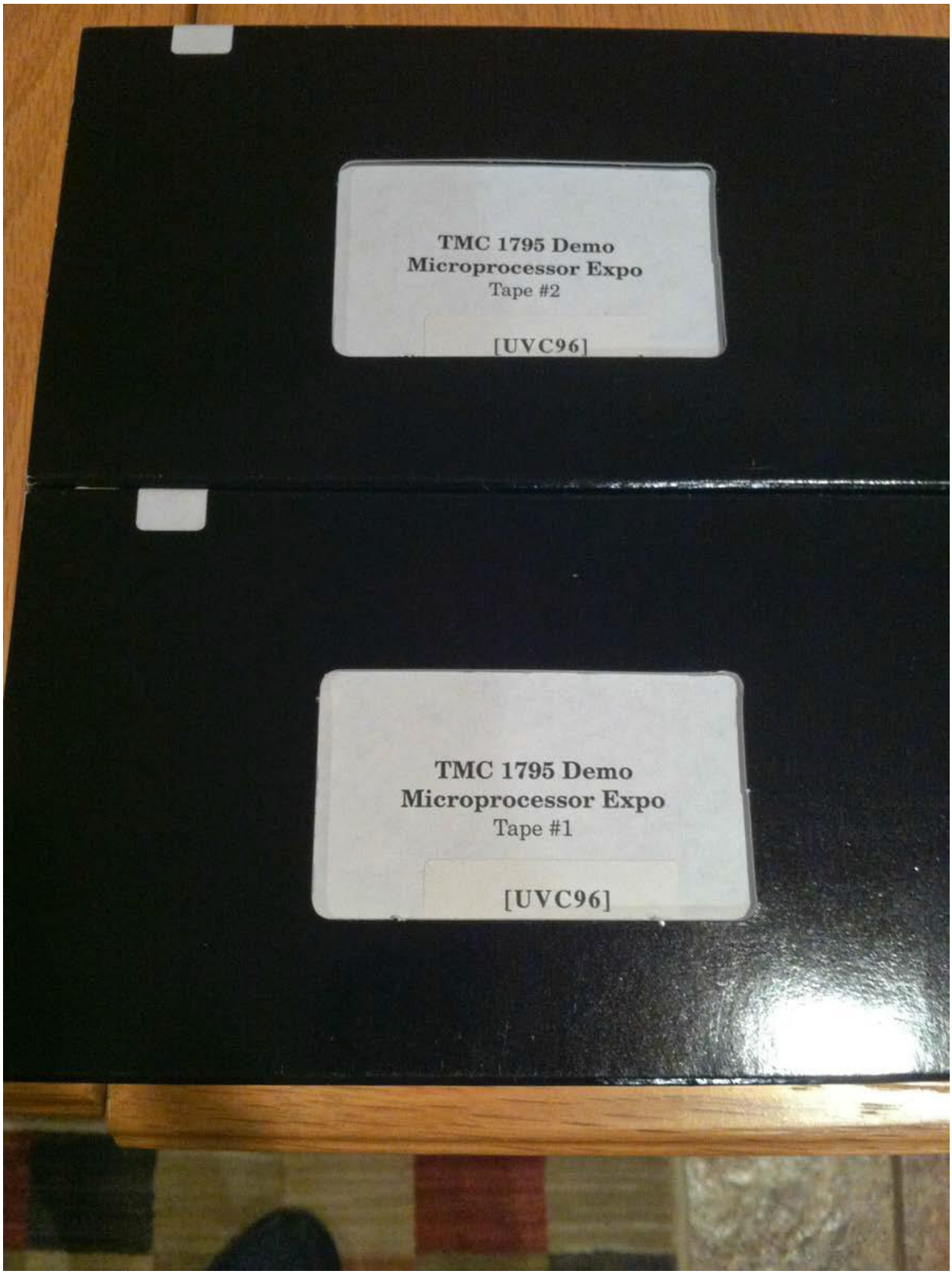

GARY BOONE
(303) 499-9229
Set G
ACCO,


Hi8
HME
SONY
Hi8 ME 120
Hi8
Hi8
SONY
1795 DEMO UNIT
FIRST ATTEMPT TO RECORD
10/14/

Box 158 cont.

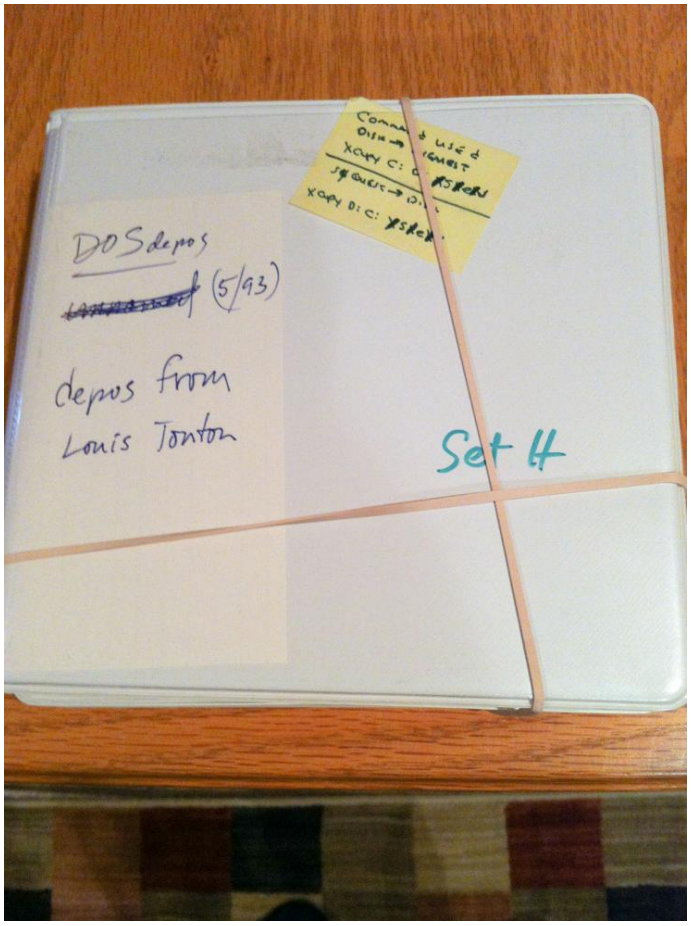

Boone III. V1
Set A
3M
3.5, DS
NE Shuttle to GB - 12/10/91
Massive -
Depo Exhibits
Docs. Produced (Pltf + Calc)
Docs. not Produced
Clawback & Privileged
GB update 12/4/91
Verbatim
DataLife
MF2-DD
Set C
HYATT v. BOONE DEPOSITIONS
Michael J. Cochran (vols 1+2)
Vernon G. McKenny (vols 1+2)
Gilbert P. Hyatt (vol. 1)
Harry L. Stover (Vol. 1)
Donald Black (vols. 1+2)
Donald Craft (Vol. 1) 5/10/93
Indexes
Ref. Hyatt Applications -
'520, '88, '556, '258,
and Ref. Text.
Set D
BASF

Box 158 cont.


TMC 1795 Demo
Microprocessor Expo
Tape #2
[UVC96]
TMC 1795 Demo
Microprocessor Expo
Tape #1
[UVC96]

Box 159

Deposition transcripts on a variety of media. See Box 158 for paper index.

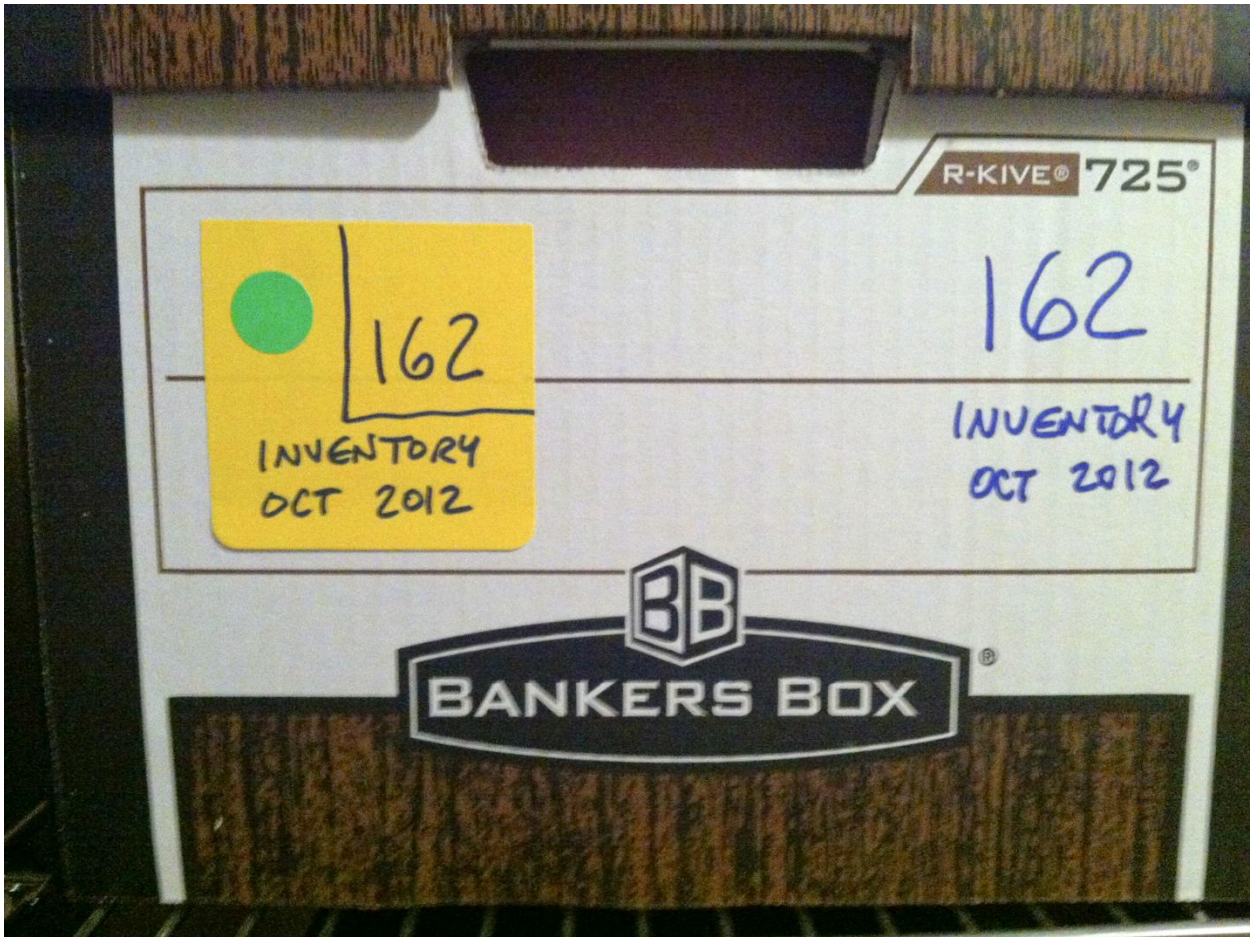


Box 159 cont.


depo. transcripts:
Hoff
Set B
P.O. BOX 20912
PHOENIX, ARIZONA 85036
Set F
FIRST CLASS
U.S. POSTAGE
PAID
PERMIT NO. 41
PHOENIX, AZ.
MOTOROLA
SPECS IN SECS
DO NOT FOLD—FLOPPY DISK

Box 162

Notes from late 1971 on Gary Boone trips to Siemens, Olivetti. TI references. Gary Boone resume when leaving Litronix. Ford panel discussion that Gary was on. Collins material 1967–1968. Transcript of UVC video on 1795. References ca. 1972 on Intel MCS-4. Datapoint specs. Postcards from 1996 Microprocessor Forum event. Trademark registration for Micro Methods. Patent agent certificate from USPTO. Black binder of Litronix overhead transparencies re scientific calculators. Hanging file folder containing personal material, Gary's resumes, job descriptions, Ford reports, Litronix reports, copies of patents, 1972 TI newsletter re single-chip calculator, 1982 letter from TI listing Gary's patents, employment reviews from Litronix, 1982 proposals from Micro Methods to Calma and Computervision.
Note that some items were removed from this box and returned to the donor.



Box 162 cont.


[BCG81]
Boone @ Collins '67-69
MOS Data Bas Design
PTA Deposit Account 6/2000
1990
Oppedahl
GB → Siemens / Olivetti
9/81

Box 162 cont.

VERSIFIED FUND

Total for Year

+25.2%
+ 2.5%
+27.7% *

dded to the

OUNTS

$ 80.50
es $114.51
$125.37

licated aring

results for hat the TI con- e TI employees trust will be 2.7% of TIers earnings. This bject to adjus- nal results for ailable.

aring

nents of Profit s will be distri- ticipants during . 28, according er of the Profit tration Office in

the partici- ll be authoriza- completed and ipants who want ge in the way ng is being in- ose who will authorization the first time. Profit Shar- er one full tinuous em-

ms and ann- account will e same man- are distribut- . He expects red to TI Per- s no later than Feb. 21. orization forms rned in to su- day, Mar. 3, so in turn, can thout delay to

authorization left flat, un- asizes. "If the led, it will save man-hours of fit Sharing of-

Calculator on a Chip Named Circuit of the Year

Amelia Rust of Equipment Group, Dallas, displays the "Calculator on a Chip", a complex integrated circuit containing all the logic and memory functions necessary for an eight-digit calculator. The device was named "Circuit of the Year" by a German electronics publication.

The tiny chip of silicon measures less than one-fourth of an inch square, but this extremely complex integrated circuit contains all the logic and memory functions necessary for an eight-digit calculator. In the process it replaces over 6,000 transistors.

Sound pretty amazing? It's TI's "Calculator on a Chip", an integrated circuit produced in Houston using the metal-oxide-semiconductor process (MOS).

While this latest development in IC's by TI engineers was introduced only late last year, already it's off to a phenomenal start. Recognizing the importance and complexity of the device, "Elektronische Zeitung," a leading German electronics publication, named the "Calculator on a Chip" "Circuit of the Year."

The tiny IC is more than deserving of the honor. "It's the most complex circuit ever designed by TI and successfully phased into production," says Don Benefiel, MOS department manager in Houston.

By virtue of its customer appeal this new TI product is enjoying success in the marketplace. It is also contributing to the increased sales of other TI products destined for use in electronic calculators. These products include visual light emitting diodes and VLED drivers made in Dallas, select plastic - encapsulated transistors also made by Dallas TIers, and calculator keyboards that are produced by TIers in Attleboro, Mass.

It took TI engineers a year of intense work to design the chip and the fact that it was possible is attributable to a team effort, says MOS Engineering Branch Manager Dave Simpson.

(See CHIP, Page 3)

HOUSTON HI★LITES

Vol. 3, No. 2 For TIers, About TIers, By TIers February 1972

'71 Income Up 13% With Sales Decrease *C/U Election*

Box 162 cont.

t them in Large Scale
(LSI) of complex el-
rcuitry and systems.
circuits are coming
e in such applications
c calculators. In the-
ions a single cip of
one-tenth of an inch
contain as many as
e electronic circuits
all mathematic fun-
calculator.
itions were made by
y, who, in February.
resented the National
cience by President
Nixon for original
of integrated circuits
58.
,643,138 is for the
configuration com-
in the majority of
rated circuits now
factured. It descri-
ted circuits in which
circuit elements are
tly in the semiconduc-
nd partly by insulating
ting layers on the wa-
ated-gate field-effect
and silicon oxide ca-
re examples of such
ments. "MOS" is the
monly used today for
circuits with elements
e.
3,643,232 covers in-
ion techniques which
ible LSI circuits of both
"bi-polar" type now
to wide use.
SI patent has 24 claims
des an array of elect-
rcuits, or "cells", in
olumns with "tunnels"

and shift registers for calculators and computers. The patent also covers multiple layers of metal leads for large numbers of cell interconnections.

TI said several semiconductor manufacturers already are licensed under the two key patents described.

Chip

(Cont. From Page 1)

Dave has been associated with the program for about four months, but he cites the individuals responsible for developing the new IC: Gary Boone, manager of Systems Engineering, who conceived the design; Dick Gossen, manager of Calculator Design, who implemented the design into hardware; and engineers Roger Fisher, Joe Raymond, and Mike Cochran.

TI's "Calculator on a Chip" is capable of adding, subtracting, multiplying, and dividing -- basic calculator functions. With it comes the age of low-cost, pocket size electronic calculators for use by practically everyone. An age TIers are making happen.

FOR SALE - 2 Bedroom Mobile home; 12' by 52'; central air and heat; washer; carpet; $3,200 firm; Call 467-4215 or Ext. 2646 (3rd shift). See at 2648 1/2 Campbell Rd.

FOR SALE: Youth Bed w/mattress, walnut finish; Like new; $25. Call 498-1780

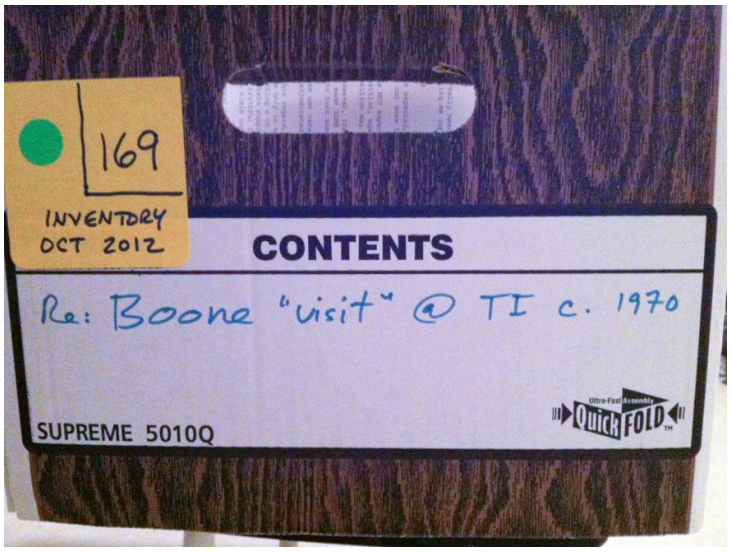
Seven Canadian vis
senting the users,
buyers of the "Sile
ectronic Data termi
Canadian Police
Centre (CPIC) prog
DSD-Houston the w
uary 17 for operatic
tenance training.
was given by Gary
DSD Field Service
ing with help from
emaud (Marketing),
bert (Field Servic
Woodruff (Engineeri
The CPIC progra
ned to eventually us

Did Y

Many TIers have
larger tax bite has b
from their paychec
The Internal Reve
in an effort to mi
pleasant surprises'
of the 1971 tax law
that "many employ
more Federal Tax
they had anticipate
adjust their wit
1972."

Box 169

TI material. TI references. Lemelson v General Mills. Boone v Hyatt. Lee Boysel AL1 demo unit. Boone deposition TI v Dell. Lee Boysel material. Datapoint manuals and user guide.



Box 170

TI v ITC ca. 1986. Hyatt magazine and newspaper articles. Patent analysis against Intel Pentium. Intel history of integrated circuit. Engineering reports 1986. Resumes and biographical materials of people who worked with Gary Boone. IEEE Consultants Network. Atari Games v Nintendo.
Note that one folder was removed and returned to the donor.

Box 172

Personal financial records. Gary Boone journals and notebooks 1986–1989.
Note that one folder was removed and returned to the donor.

Box 211

Correspondence filed by individual names. Larry Bassuk, Bob Kahrl among others.

Box 212

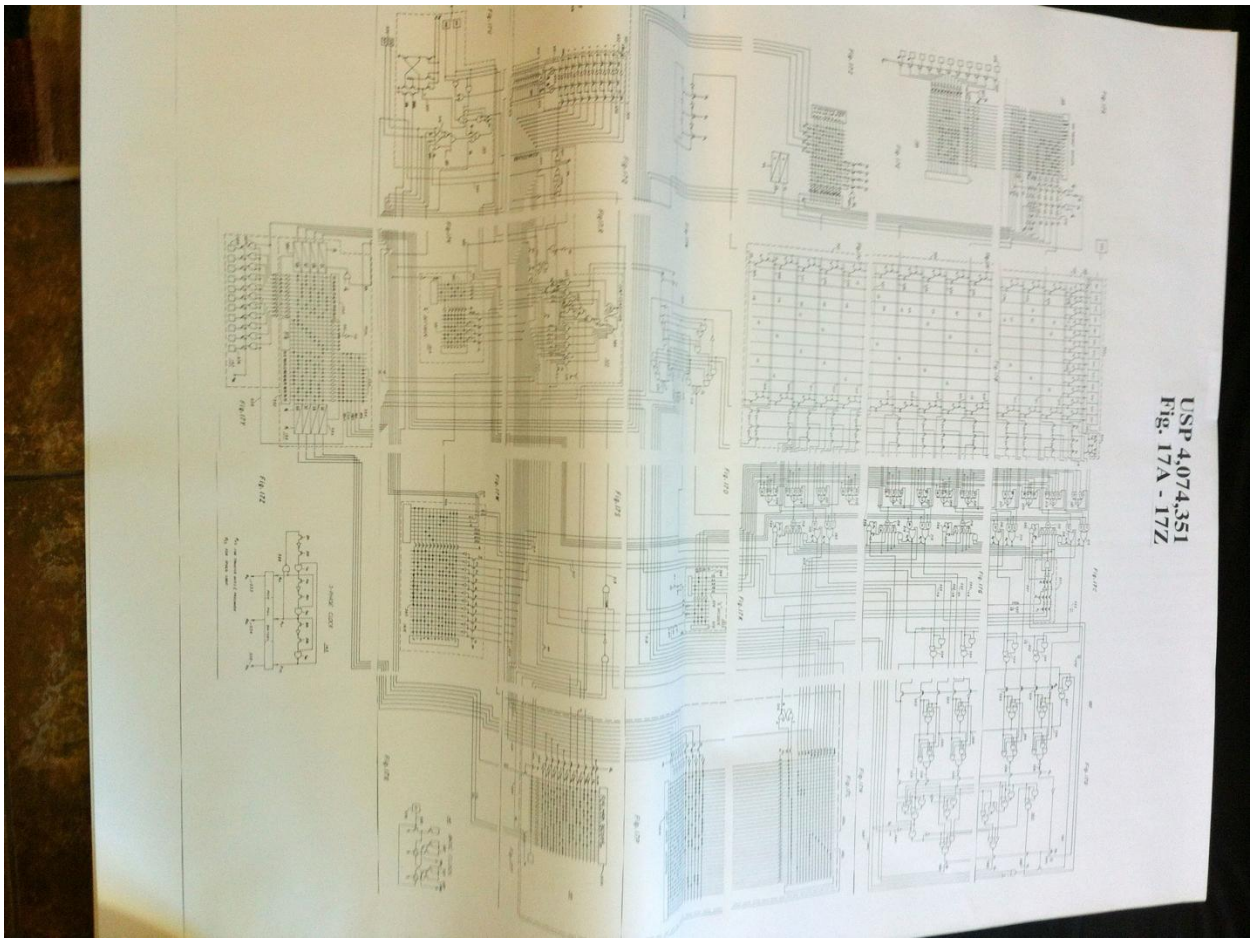
REDACTED personal correspondence.

Item 223

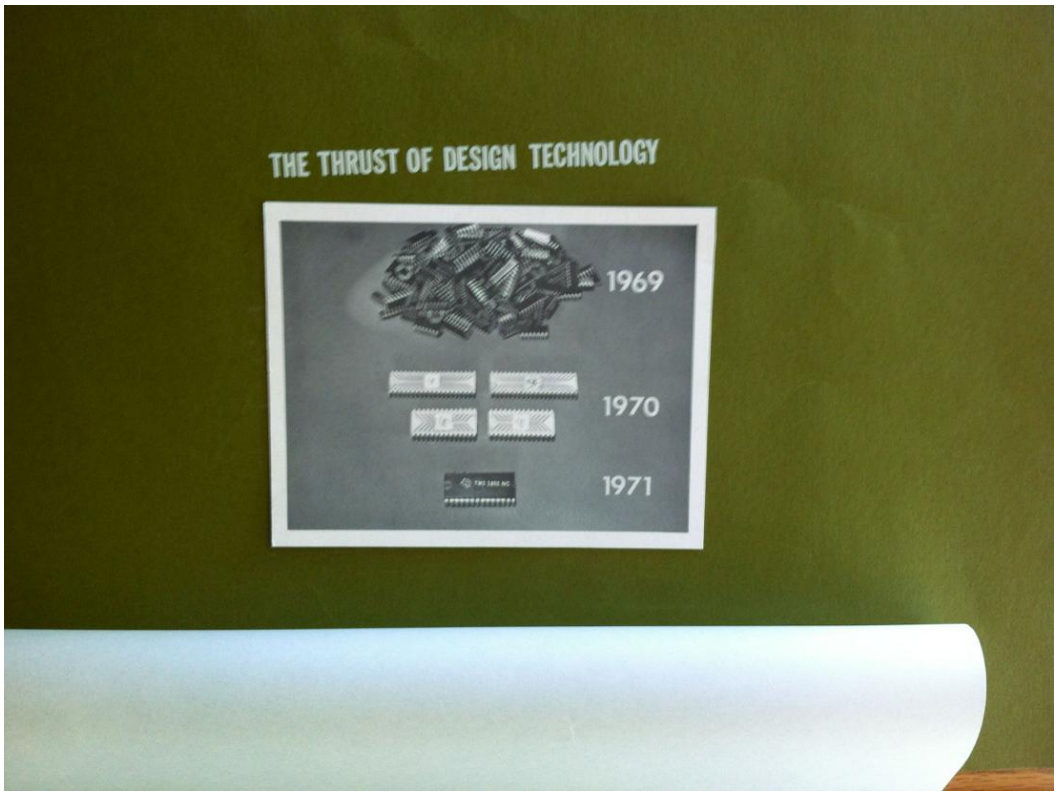
Bottom drawer of flat file. Much TI materials. Fig. 17 of ’351 patent (one folded, two flat). Photographs of 1795 annotated. Large 1802 ruby. Large plots of TMS 0100, TMS 1000, TMC 1795A. Presentations apparently for Ford.

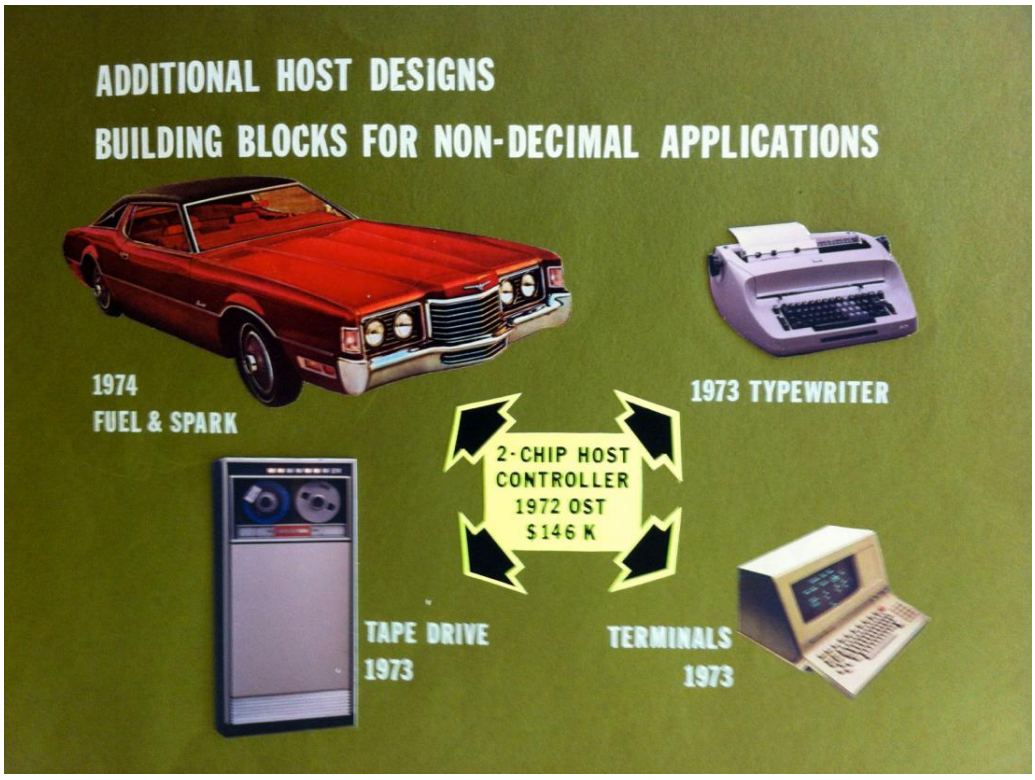
Item 223 cont.

Item 223 cont.

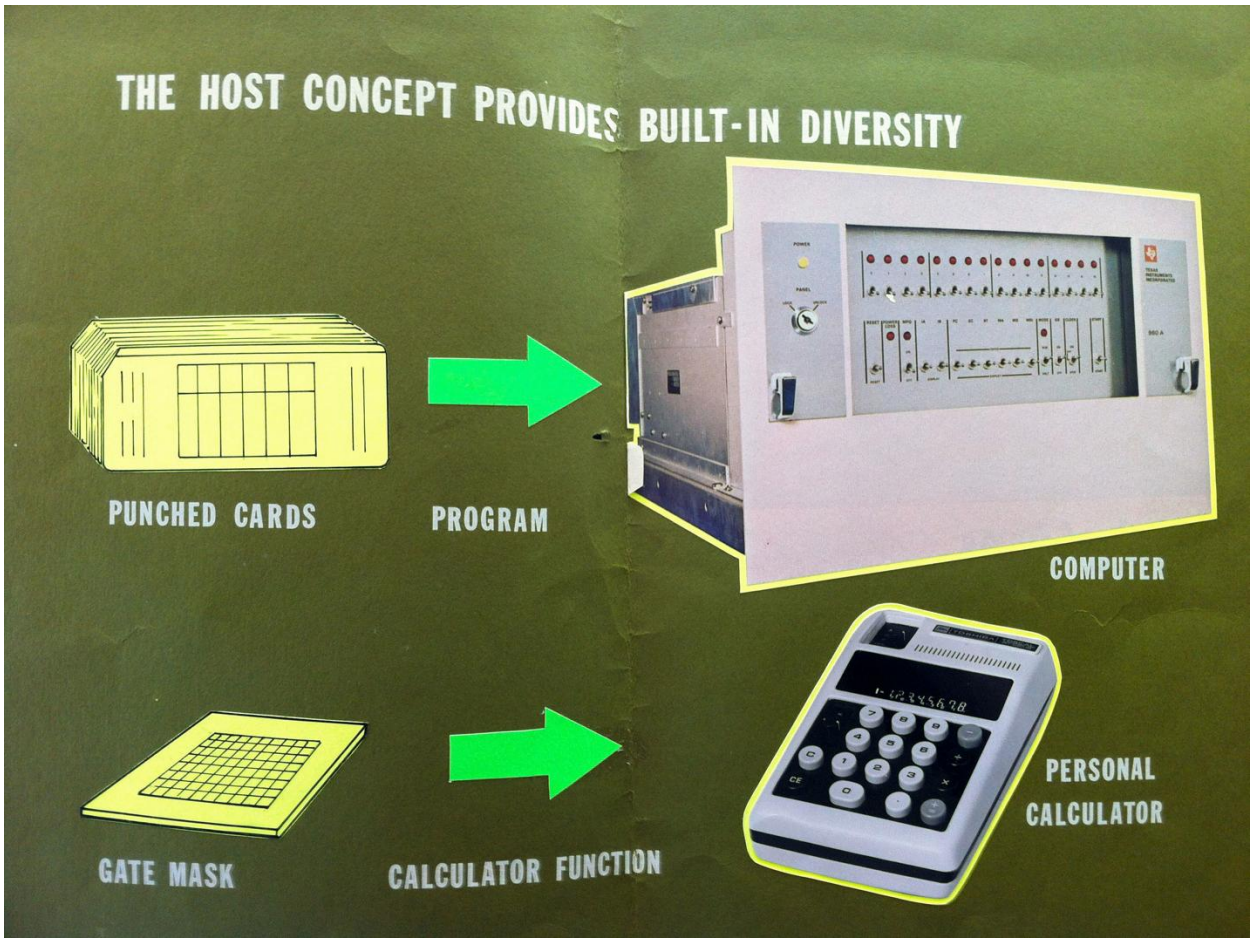


Item 223 cont.

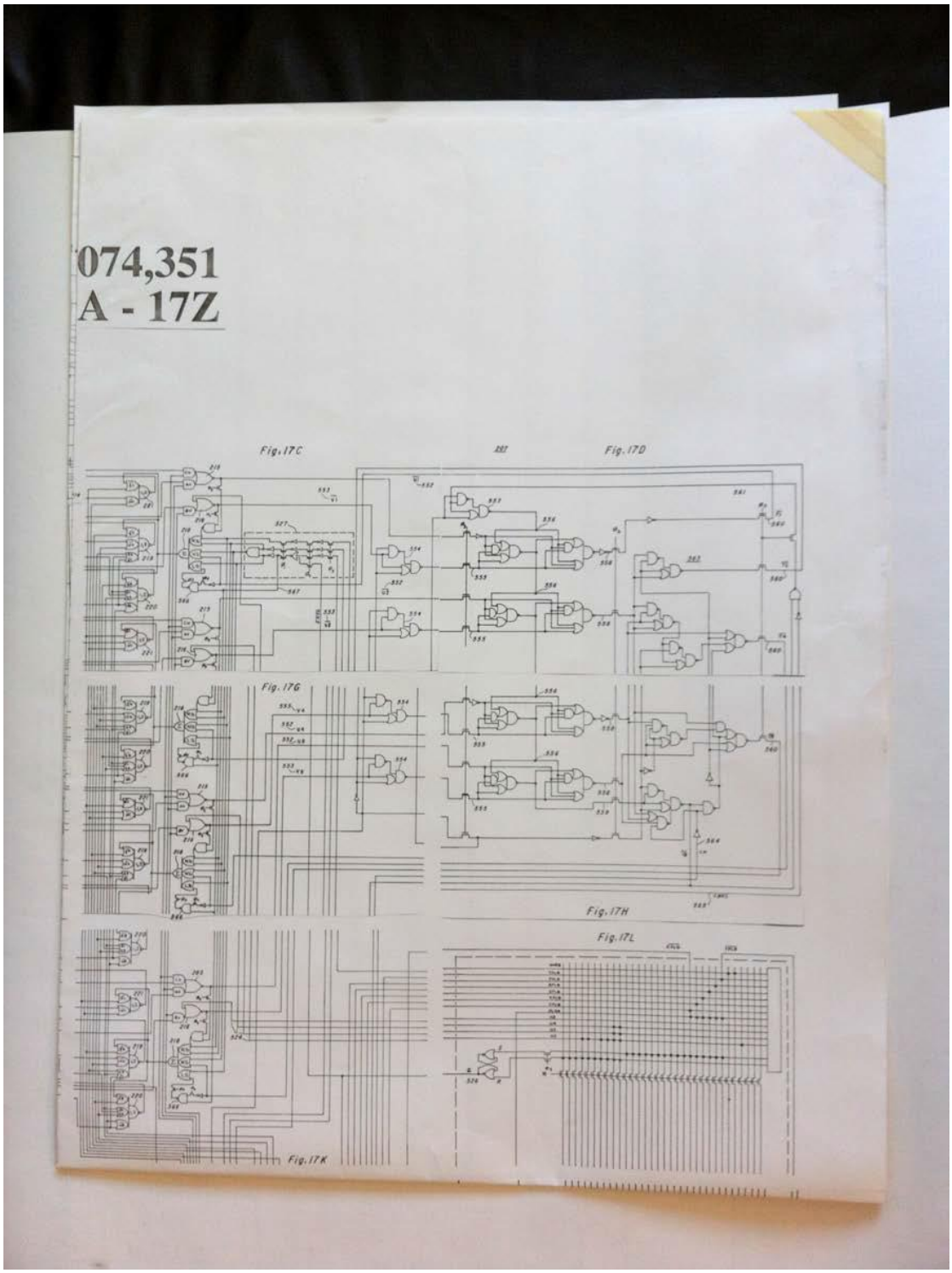




Item 223 cont.

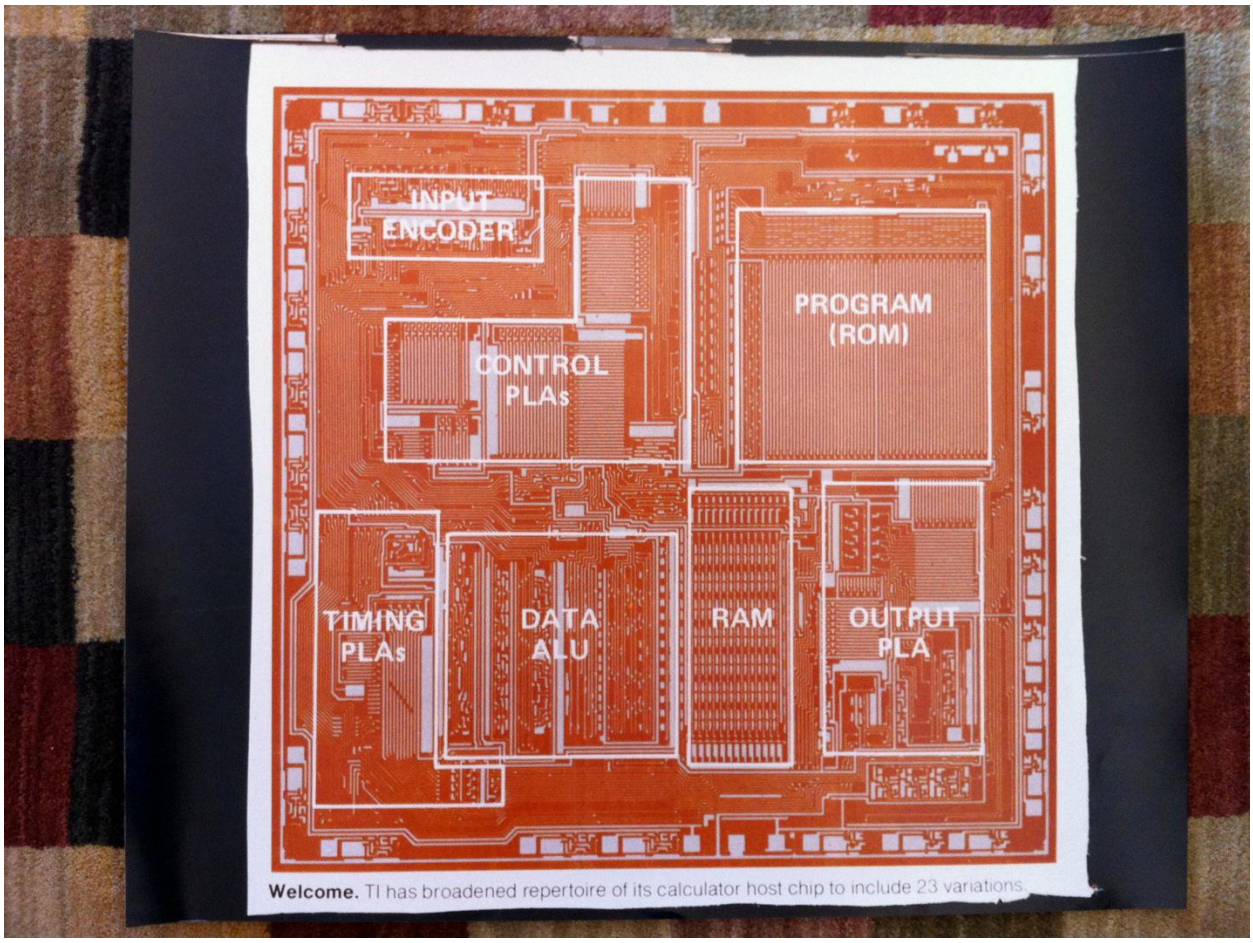


Item 223 cont.



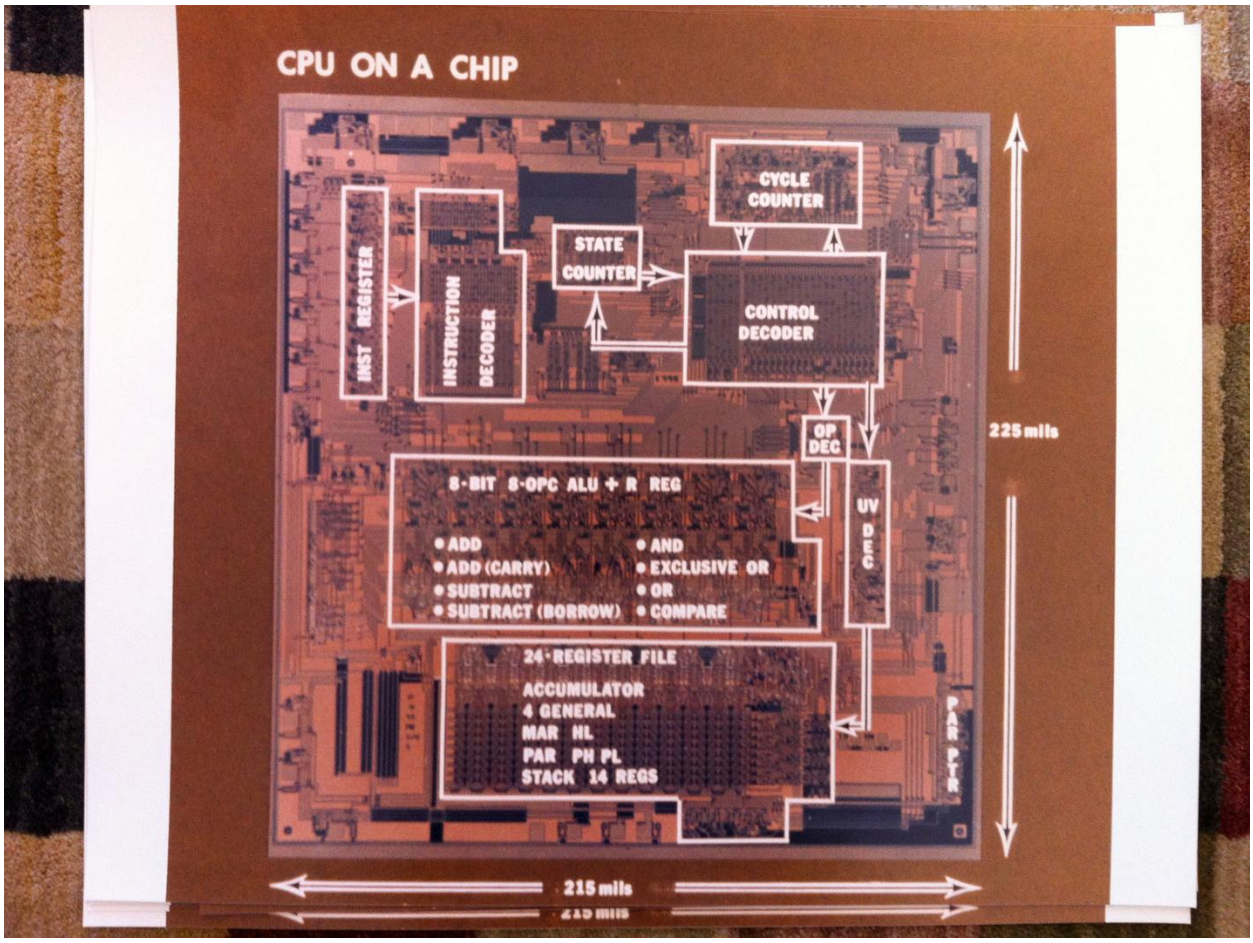
Item 223 cont.

TMS 1802, TMS 0100



Item 223 cont.

TMC 1795



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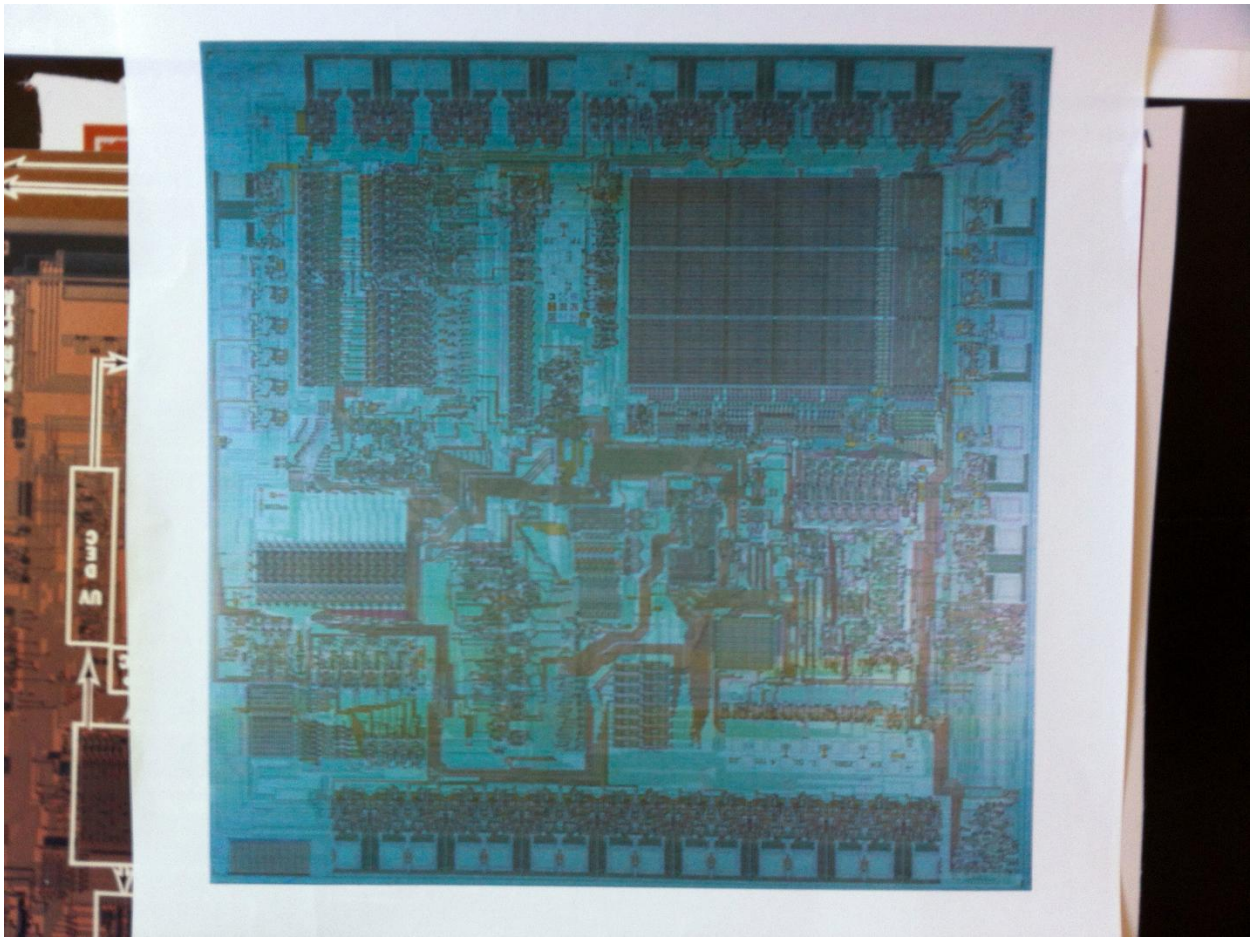
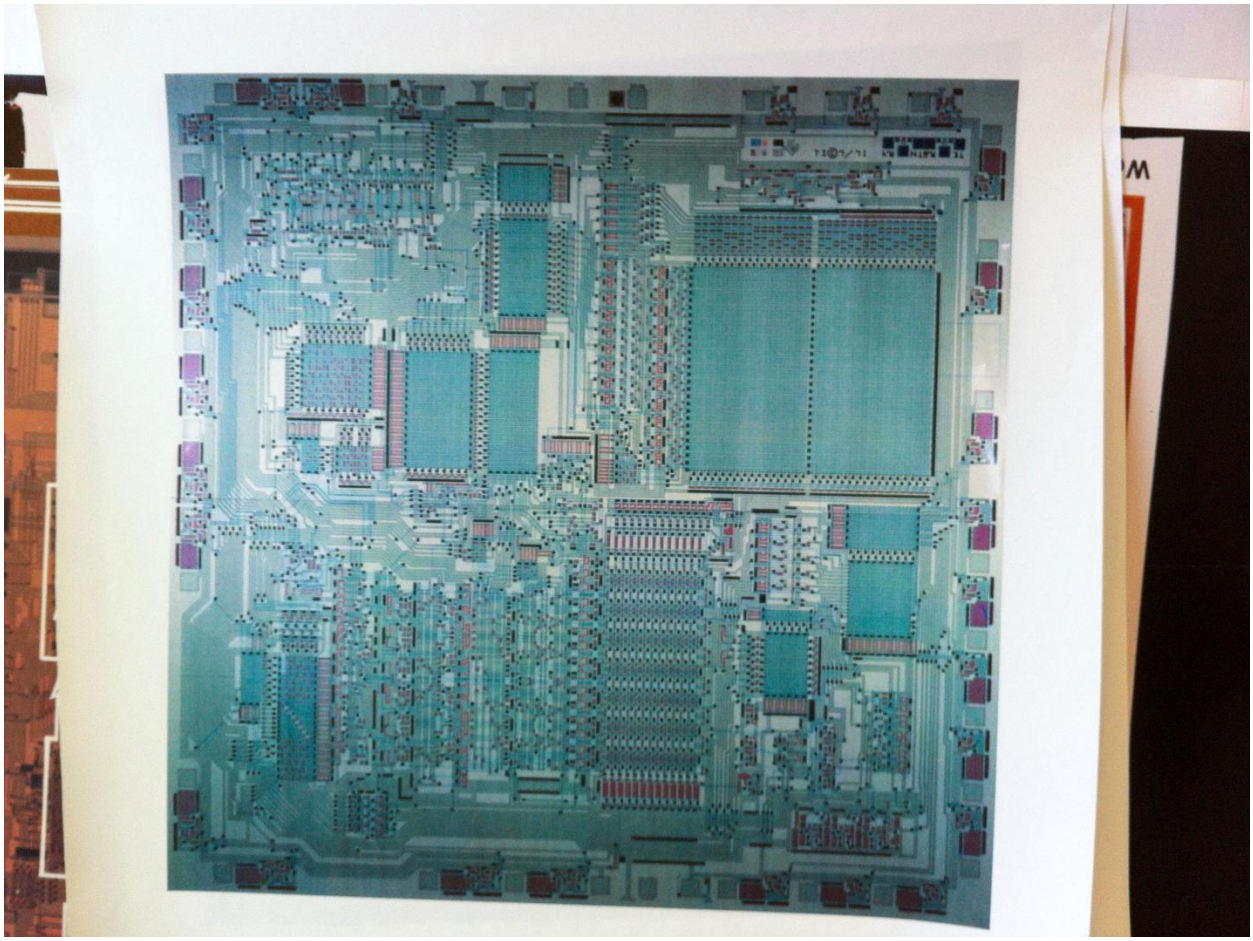


Item 223 cont.

TMS 1802



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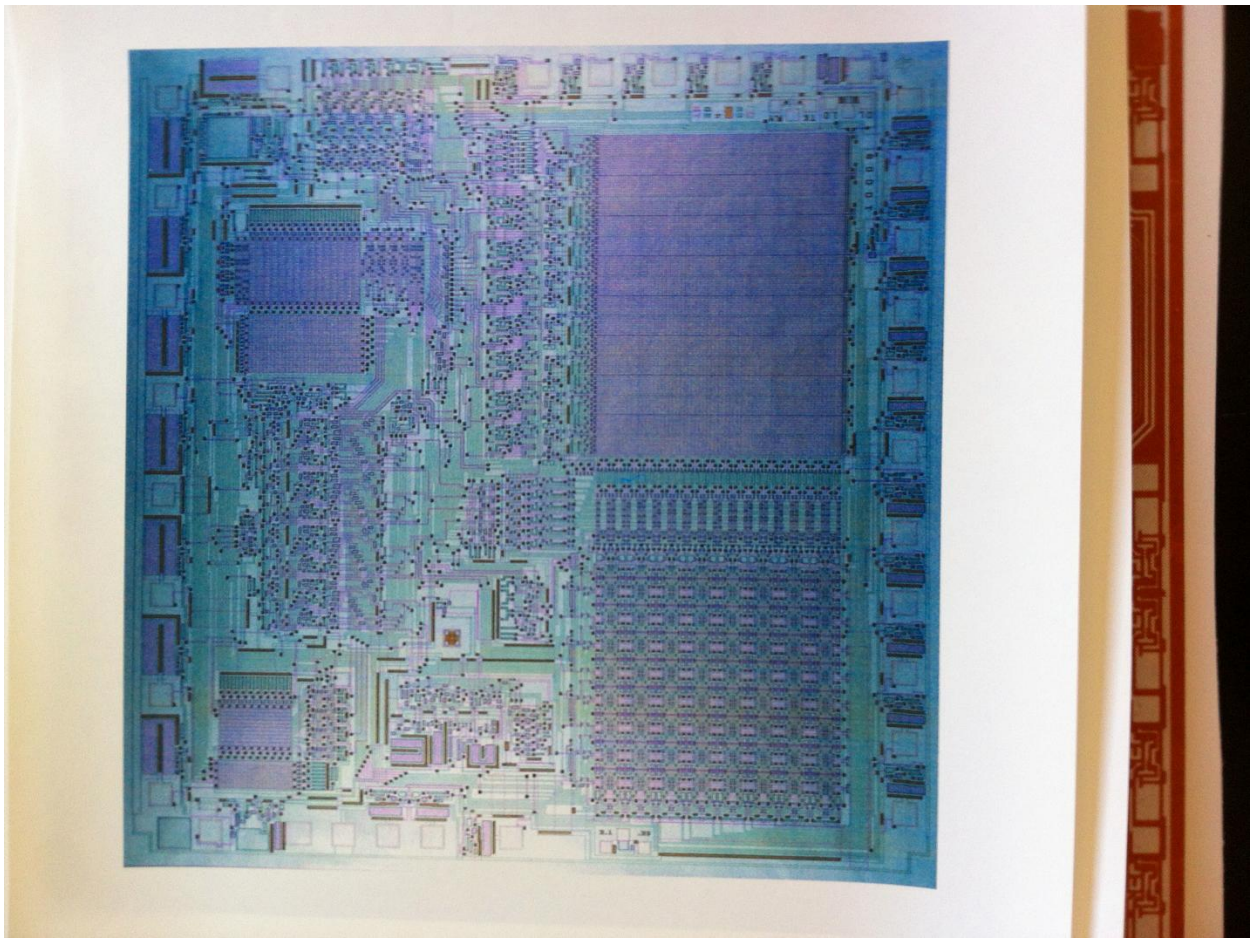
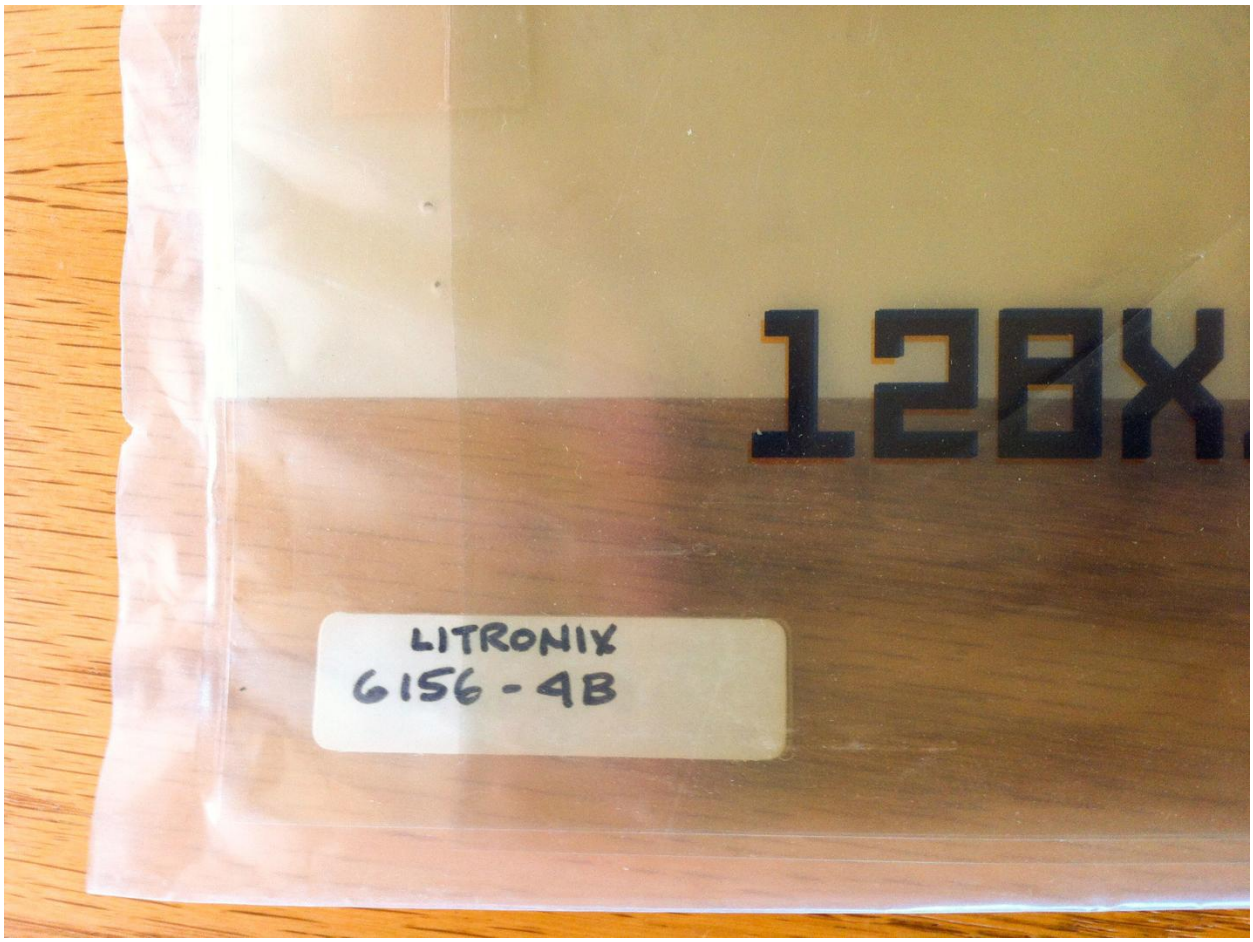
TMS 1000



Item 223 cont.

Item 223 cont.



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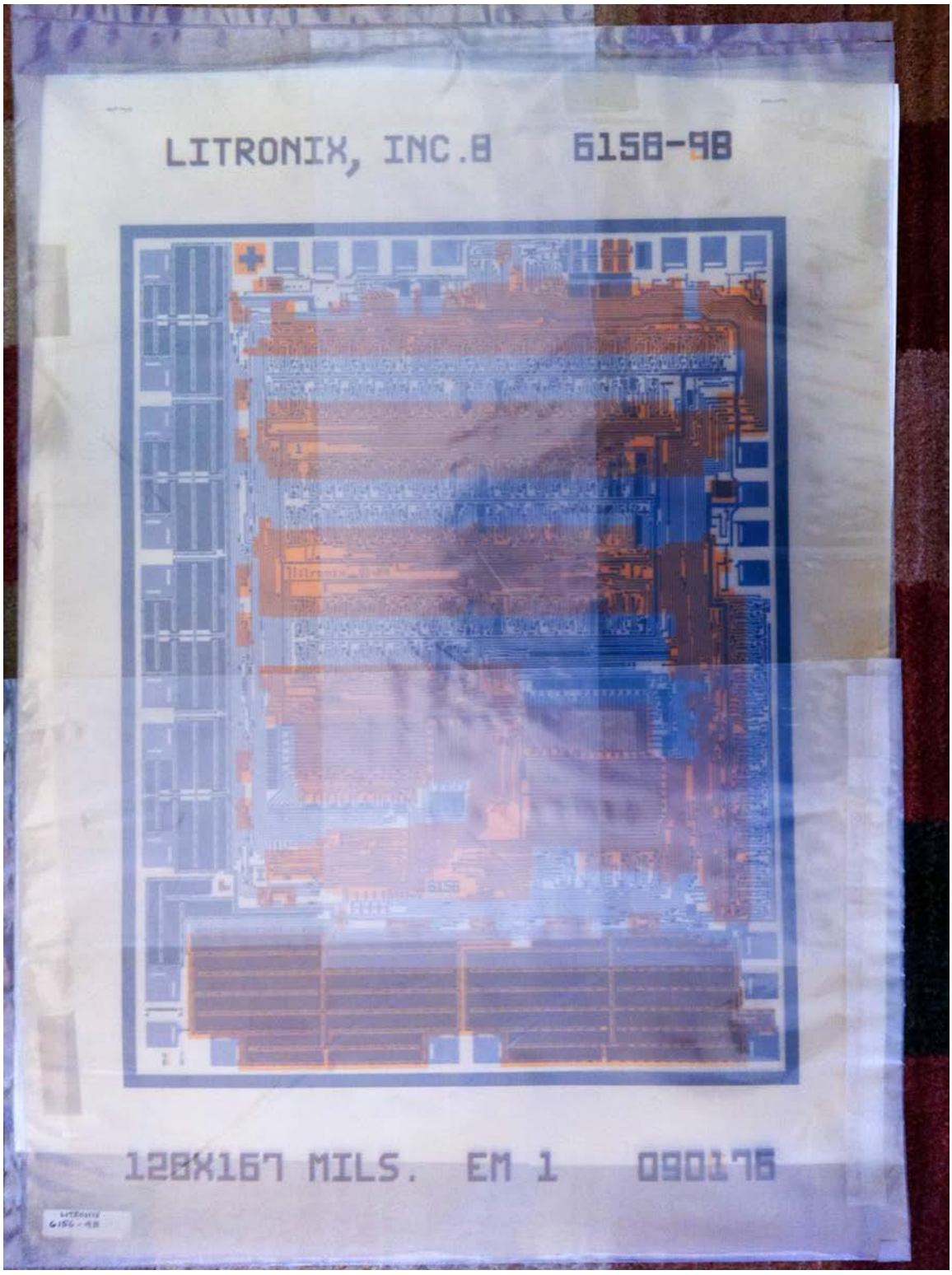

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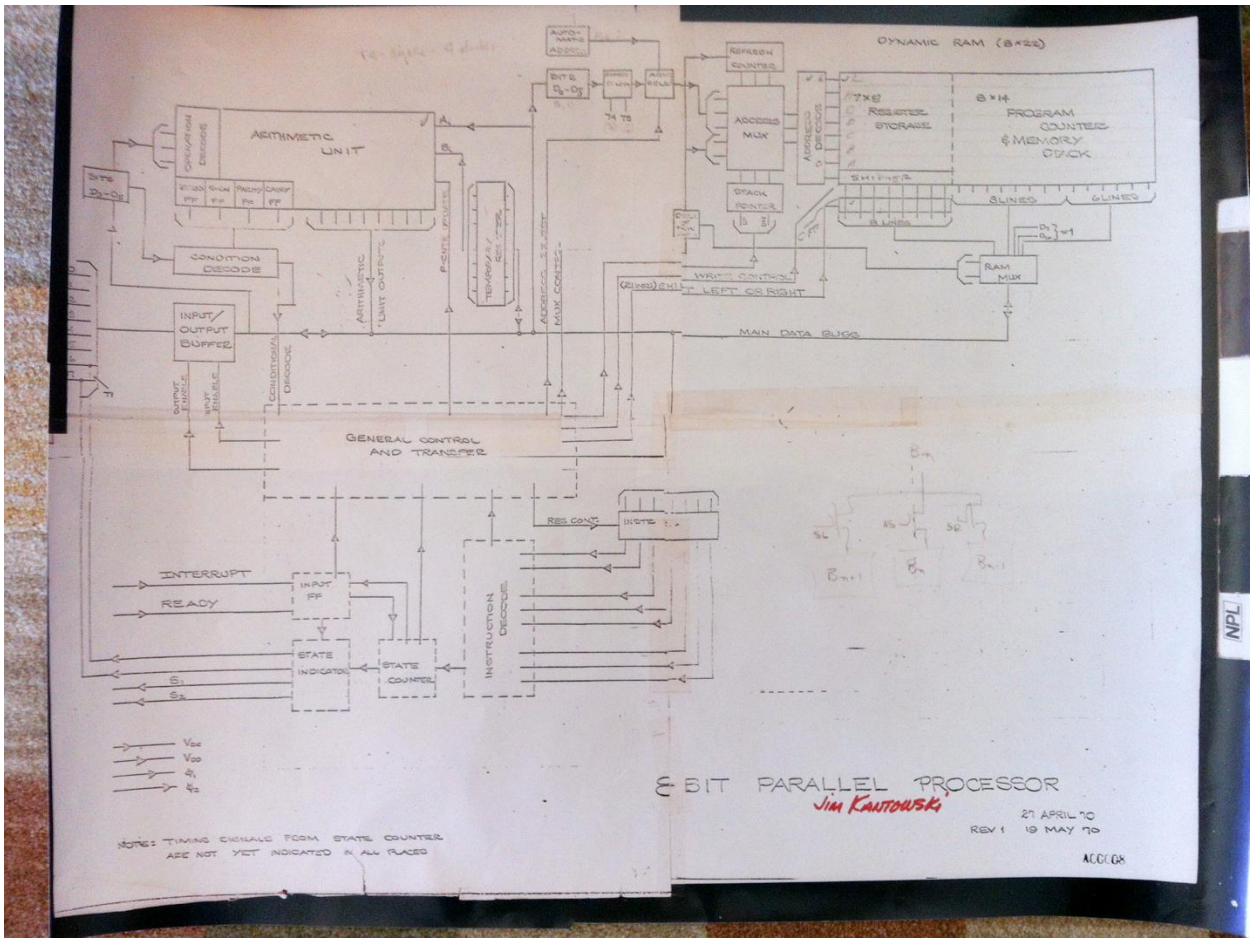

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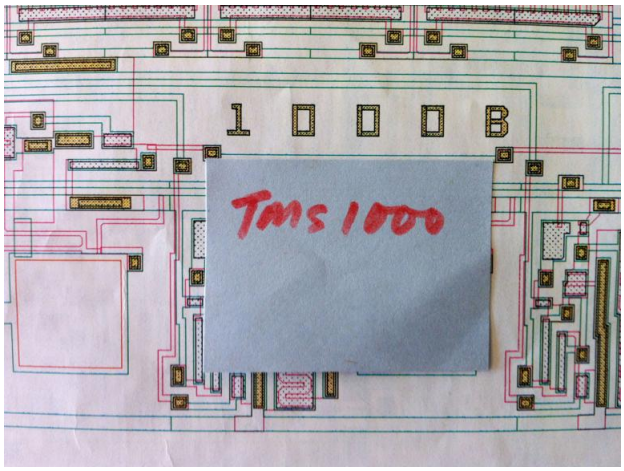

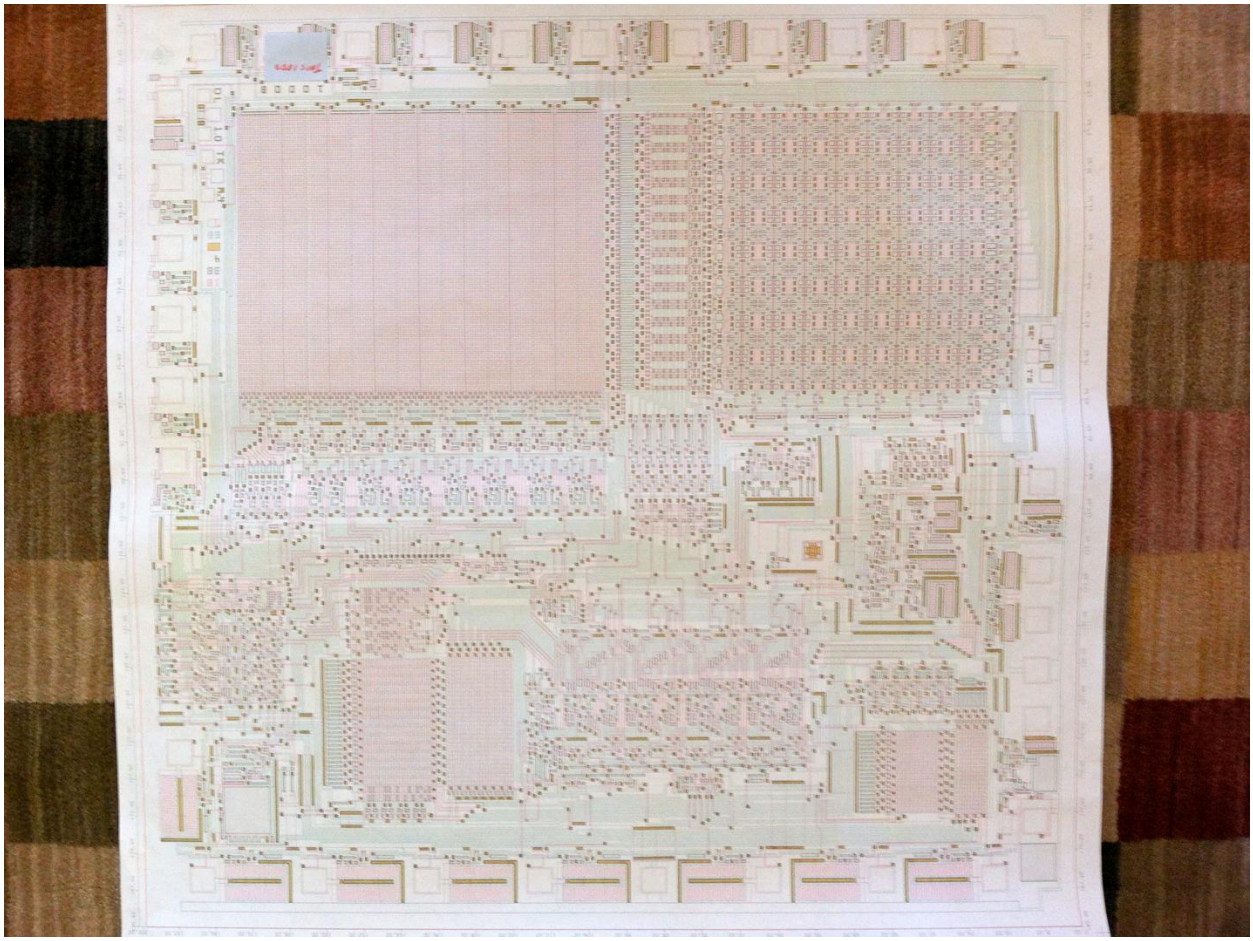

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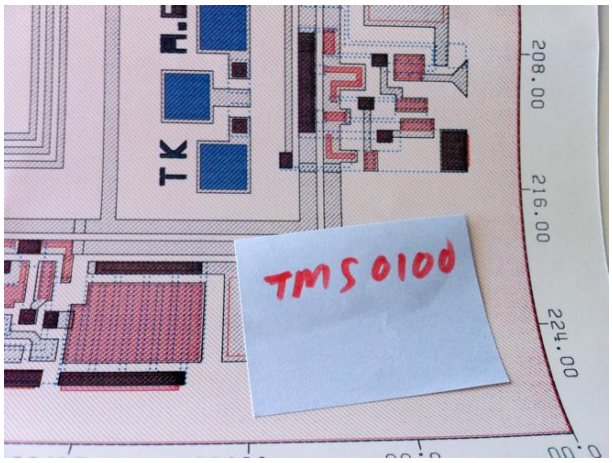

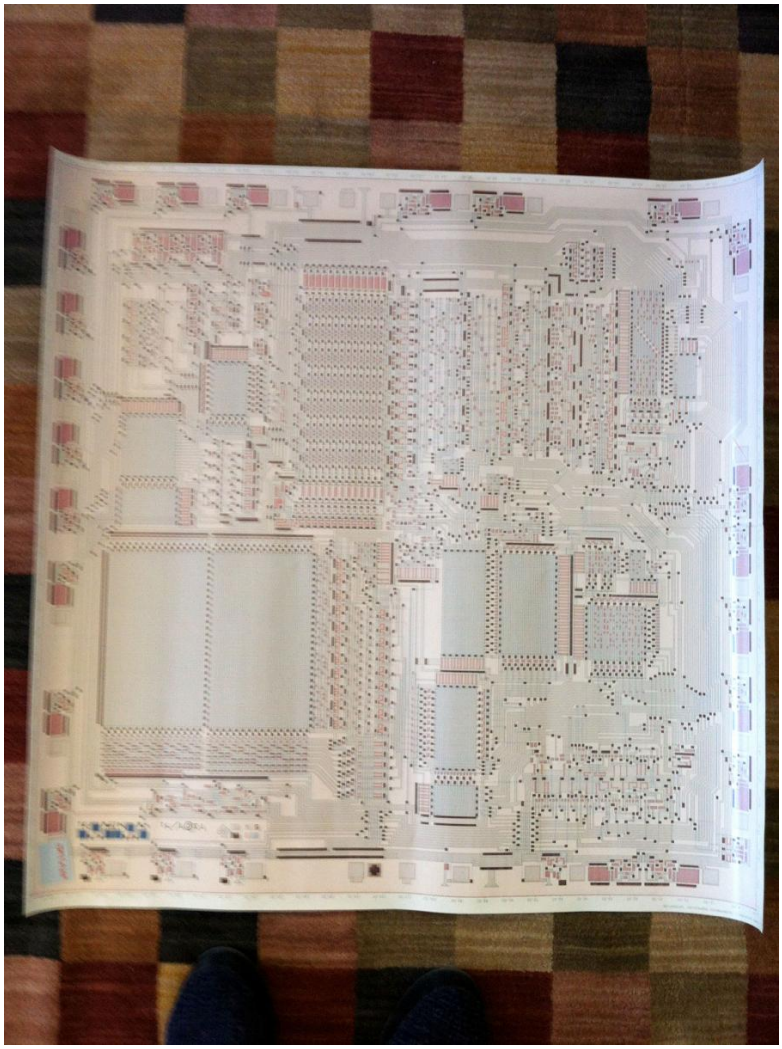

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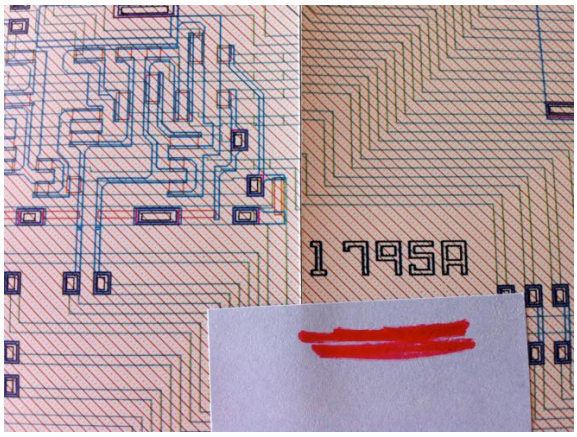

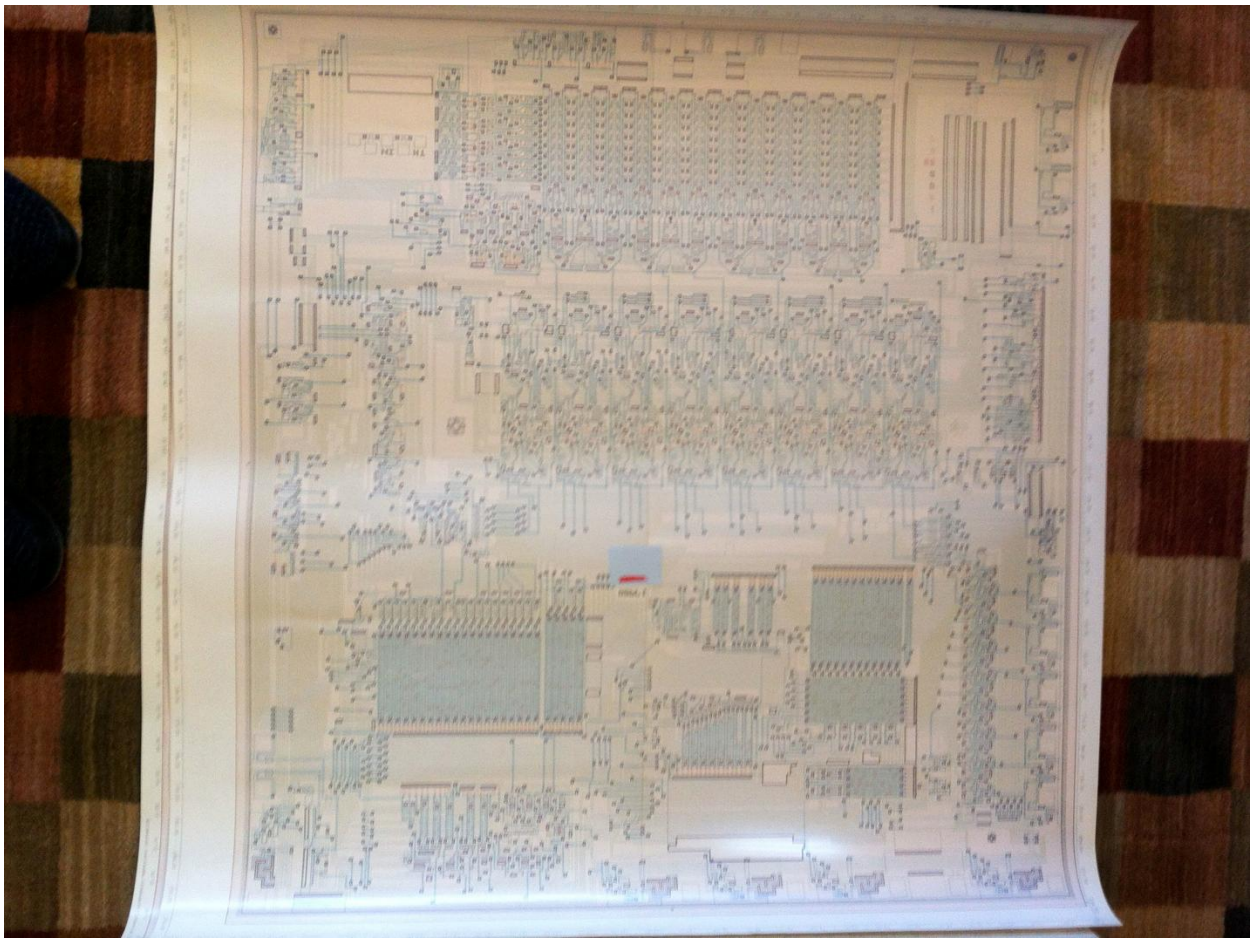

Item 223 cont.