June 10, 1980

Mr. Jeffrey A. Rochlis
President
Mattel Electronics
5150 Rosecrans Avenue
Hawthorne, CA 90250

Dear Jeff;

As we have discussed on a number of occasions, the business relationship between Mattel and Motorola needs to be improved for our mutual benefit. With that objective in mind I would like to meet with your people in Chicago at our Applications Suite, which is associated with the Chicago Spring Conference on Consumer Electronics. The meeting takes place at the Arlington Park Hilton on June 18 and 19. For your convenience, I have attached some preliminary information concerning the Spring Conference.

In our Applications Suite we will have a number of exhibits including a live demonstration of Project Green Thumb, which is presently the only Federally-funded home information terminal program in the United States. This is a pilot program sponsored by the Department of Agriculture and the National Weather Service, and has been on-line since March 3, 1980. Attached you will find a brief summary of Project Green Thumb as well as a recent article explaining the program. More information is available and a paper will be presented during a two day teletext seminar at the Spring Conference. We will also be demonstrating in our suite other advanced semiconductor products aimed at the personal computer, CATV and home terminal markets.

As you have suggested, I would also like to meet with some of your key people in Hawthorne to further explore just how we initiate a meaningful business relationship. Could you please suggest those that I might contact. Finally, I would once again invite you to visit our facilities in Phoenix where you could also tour the House of the Future at Ahwatukee. This experimental home includes a Motorola-designed computer control system which demonstrates our strong commitment to supply advanced semiconductor products for the new consumer market. Enclosed you will find a brochure of this home which helps to highlight some of its features.

100450024

I will look forward to meeting with your people in Chicago and seeing you at your earliest convenience.

Sincerely,

Stan Katz
Consumer Marketing Manager
Motorola Semiconductor Group

cc: Jerry Russell

/cc

MOTOROLA INC.

Semiconductor Group

Inter-Office
Correspondence

Date: February 4, 1982

To Doug Powell
Don Sheppard
Steve Tainsky
Chuck Thompson

C: Len Altobello
Doug Bartek
Bud Broeker
Sharon Larson
Bill Mead
Fuad Musa
Gary Tooker
George Weiler

From: Bill Peterson   Mail Drop: Z343

Phone: 244-6383

SUBJECT: Mattel Visit
February 10 & 11
(Wednesday & Thursday)

Who
Hugh Barnes	-	V.P. Engineering
Dr. David Chandler	-	Director Advanced Development
John Fairbanks	-	Director Product Marketing
Roger Rambeau	-	Director Material
Dave Hostetler	-	Design Engineer

Where
Marketing Conference Room - Z Bldg.

Background
See attached memo.

Subjects
Intellivision II
- MC68000
- "Custom" Video Chip needs
- GI Advanced Sound and Speech Chip

Intellivision I
- Current Mattel gate chip set
- 4116 16K Memory (RAM)
- Possible Silicon gate

Handheld/Game
- MC6804

Objectives
- Get Mattel committed to MC68000 series for Intellivision II.
- Resolve needs for "Custom Video Chip".
- Search for 1982 business opportunities.
- Sell Mattel we want to be their semiconductor supplier.

Bill Peterson
/pp

AGENDA (Revision 1.0)

MATTEL VISIT
FEBRUARY 10, 11, 1982

Wednesday, 2/10/82

9:30 A.M. - 10:00 A.M.	Welcome	Doug Powell/Steve Tainsky

10:00 A.M. - 11:30 A.M.	Intellivision II
	  Requirements,
	  Philosophy, etc.
		Dr. David Chandler

11:30 A.M.	Lunch (Includes light discussion)	
1:00 P.M.- 1:30 P.M.	10 Bit Wide ROMs	Bud Broeker
1:30 P.M.- 1:45 P.M.	Meeting with Gary	Gary Tooker V.P. & Gen. Mgr. Motorola SPS
1:45 P.M.- 2:45 P.M.	Video Controllers	Bill Peterson/Pat O'Malley
2:45 P.M.- 3:15 P.M.	Gate Arrays (CMOS, Bipolar)	Rick Hightower
3:15 P.M.- 4:30 P.M.	Audio Modems & Filters	Lorie Plaga
4:30 P.M.- 5:00 P.M.	Antenna Switch & Remote Control	Fred Zlotnick
5:00 P.M.- 5:30 P.M.	ROM, RAM (Current & Future)	Dennis Pfleger
7:30 P.M. -	Dinner	All Mattel Guests, Doug Powell, Chuck Thompson, Bill Peterson, Don Sheppard, Bill Mead, & Doug Bartek

Thursday, 2/11/82

8:00 A.M.- 9:00 A.M.	MC68000, MC68008	Doug Bartek
9:00 A.M.- 10:30 A.M.	Discussion, "Custom Video Chip"	Dr. David Chandler Bill Peterson/Pat O'Malley
10:30 A.M. - 11:30 A.M.	Second Source Business	John Fairbanks/Don Sheppard
11:30 A.M. - 1:30 P.M.	Lunch at Country Club Tour of "House Of Future"	Don Sheppard

1:30 P.M. - 3:30 P.M.	MC6804/5
	  Alternatives to 4 Bit MCU's
	Voice/Speech
	  Synthesis & Recognition
	Mattel Needs
	  Regarding Speech
		Steve Tainsky
		
		Jack Stewart
		
		Dr. David Chandler

3:30 P.M. - 4:30 P.M.	Support Systems 68000 Development Systems	Susie Eastman/Bob Ferguson

4:30 P.M. - 5:00 P.M.	Meeting Summary
	  List Action Items
	  Plan Next Communication	

5:00 P.M.	Leave for Airport	

Mattel   2-11-82

Preliminary Assessment (for discussion purposes only)

Business

UP front money $1.8M ($1M to 1.8M) (negotiable trade-off with #3 below)

1. Design/layout of video processor.

2. Changing 68K to fit into 48 pin dip or 52 pin square package.

3. Volume committment of 500K to 1M systems during 12 month period (April '84 to March '85). To include 68K and video processor.

4. Second source to come on stream during late 1984. Target second source to receive minimum of 20% of business second year and afterwards.

5. Total Anticipated Volume - all sources
    50K kits per week, 5/84 through 9/84
    25K kits per week, 10/84 through 4/85, etc.

Price Target - (Ramped down prices)	Price Range	Mattel Target
MC68000/48 or 52 pins	$ 5 - 10	(5)
Video Processor (68 pins)	$ 5 - 10	(8)
ROM - 64K pair	$ 4 - 6	(4)
RAM - 16Kx4 4 units	$ 8 - 12	(6)
I/O Speech chip (GI)	$ 5 - 10	(7)
TTL Assorted	$ 2	(2)
Power Supply	$ 3	(3)
	32 - 53	35

Note: At $50 program must be redefined
FOB Asia $80 target
Semi $'s target 20-30 (Ramped down Mattel targets of $35 exceeds this range)
Motorola not necessarily to support entire system; System pricing therefore, dependent on other vendors
I/O speech chip could be mask provided alternative from GI in late '84, early '85 (minimum 20% of total units)

Timing

Decision	2/28/82	
Program start	3/1/82	
Paper design completed	4/1/82 (by Mattel)	
Breadboard complete	4/15/82 (by Mattel	
Evaluation of breadboard complete/ Layout start	6/82	
First silicon	6/83	
Second pass	9/83	
Production start	1/84	

Team Effort

Systems people, designers, and management assigned to work with Mattel 3/1/82 through design program completion. Layout to start 6/1/82.

Arrangement

Mattel would want exclusive device rights on Video Processor. Motorola would be able to "spin off" generic standard product based on same architecture, slightly different function or possibly scaled up or down device.

Device Description

See attached...

1. General
    A. HMOS1
    B. 68 pin package (If $1 less, 64 pins ok)
    C. $8
    D. Production 1/84

2. CPU
    A. 68000
    B. Unrestricted memory access
    C. Use of DRAM is transparent to CPU

3. Memory
    A. 16K x 4 DRAM's
    B. 16 bits wide
    C. Supports 256K byte (128K words) DRAM
    D. 200 nsec access DRAM

4. The Screen
    A. 240(?) x 192 Pixels, 40 x 24 cards
    B. Background
        1. Done by cards, 4 colors
        2. Capable of 16 colors (bit map)
        3. May do 16 color bit map cards
    C. Objects
        1. 8(16) Objects
        1.5 Collision detection - bits set in table overlap detection
        2. Prioritiezed object
        3. 4 color (1 trans.)
        4. 32 bits/16 pels - if possible, double this
        5. Re-useable by interrupting MPU or 2 banks of registers
    D. 96 alphanumerics in CG

5. Videotex - 7 x 7 with 1 bit descender
                - 5 x 7 with 1 bit descender (or 10 x 7??) where does clock originate?
    A. Mosaics in software
    B. Alpha attributes software
    C. One color alpha (light & dark)
    D. DRCS capability
    E. PDI's in color

6. Other
    A. On board oscillator (14.3 x 17.7 MHz)
    B. On board composite video
    C. 16 out of 1200 color map RAM (12 bits/color)

MAGIC

1. General
   A. HMOS1
   B. 64 pin package
   C. $8
   D. Production 1/84

68

2. CPU
   A. 68000
   B. Unrestricted memory access
   C. Use of DRAM is transparent to CPU

3. Memory
   A. 16K x 4 DRAM's
   B. 16 bits wide
   C. Supports 1 Megabyte (512K words)
   D. 200 nsec access

4. The screen

   A. 240 x 192 (?) Pixels   40 x 24 Cards
   B. Background
      1. Done by Cards
      2. Capable of 16 colors
      3. Normal is
   C. Objects
      1. 8 (16) Objects
      2. Prioritized
      3. 4 color (1 Trans.)
      4. 32 (64) its / 16 (32) pels
      5. Reusable
   D. 96 Alphanumerics in CG

5. Videotex
   A. Mosaics in Software
   B. Alpha attributes "
   C. One color alpha (light & Dark)
   D. DRCS Capability ?
   E. PDI's in color ?

6. Other
   A. On board oscillator (14.3 & 17.7 MHz)
   B. On board composite video

MATTEL ELECTRONICS

5150 Rosecrans Avenue
Hawthorne, California 90250
Telephone (213) 978-5150
TWX-910-325-7162

March 9, 1982

Mr. Gary Johnson
Vice President and General Manager
MOS Integrated Circuits Group
Motorola, Inc.
3501 Ed Blestein Blvd.
Austin, Texas   78721

Dear Gary:

I want to thank you for the opportunity to meet with your key
marketing and technical people in Austin yesterday and for the
courtesy extended to us by Motorola during our visit to your Austin
facility.

Because you were unable to meet with us due to your prior commitments
(and, believe me, I fully understand, having been in the same position
many times), I wanted to take a moment to summarize our reactions to the
discussions and also to pass on some of our concerns to you that I did
not necessarily wish to vocalize before the "troops".

Gary, it is the mutually held belief of Mattel and Motorola that there
is a tremendous potential for a long range relationship between our companies
that can mean several hundred million dollars of revenues for Motorola
during the '80s. I believe that as a result of what we learned in Austin,
there is a grave risk that all of that potential may not materialize if
Motorola does not "belly up to the bar" relative to Mattel's needs. Allow
me to elaborate on the reasons for my concerns.

First, let me summarize our position relative to the development of the
key devices in our second generation product. We believe that the interface
between the microprocessor and the MAGIC video chip is so intimate as to make
it essential that the microprocessor supplier design the MAGIC chip; or
at a minimum, to take the responsibility for its design in a "systems
integrator" role. Also, we wish the MAGIC chip design to be proprietary
to and exclusively produced for Mattel. Finally, we wish to have control
of the MAGIC chip tooling so that we can establish second (and if required,
more) sources of supply.

I believe none of the facts in the above paragraph are news to you, in
that they have been discussed at many previous Mattel/Motorola meetings.

Second, let me summarize some of the key events and communications of
the past week that set a background for the Austin meeting. Late last
Monday night, March 1, Tom Gunter called Dave Chandler at home to indicate
that Motorola had selected the Project Leader for the MAGIC chip design --
an individual intimately familiar with the 68000, who had just led a

successful VLSI design project. On Tuesday, March 2, Tom called Dave again
to request that we meet with Motorola in Austin to review your
proposed program plan to design the MAGIC chip for us. We agreed to do so.
On Friday afternoon, you and Tom called me to indicate that you would not be
prepared to propose that you could meet our schedule requirements, and that
you did not have a schedule to propose in its place. We agreed to meet on
Monday anyway, as a working session to make sure you understood our
technical and schedule requirements properly and to mutually look for
ways to meet these requirements. Later that evening, Don Shepherd called
Dave to inform him that the reason the schedule could not be met was that
the Project Leader was not going to be available for the MAGIC development
program after all.

During yesterday's meeting the agenda went something like the following
(with our reactions):

A) Motorola organization and resources.

B) 68000 family plans, including the 3/2 announcement of 1982 and 1983
    processes and peripherals. (We were impressed with the level of
    commitment by Motorola and its licenses).

C) Mattel system block diagram and architecture, proposed working
    relationships and responsibilities during development and schedule
    requirements. (We are pleasantly surprised and impressed to realize
    that Motorola may be uniquely qualified to be able to provide all
    semiconductor devices between your Microprocessor, Memory, and
    Logic Divisions, either in a primary or second source position).

D) Motorola ROM & RAM design tradeoffs of byte-wide vs word-wide memories.
    (These appear to be more favorable to word-wide, non-multiplexed ROMs
    and nibble-wide 64K RAMs in the contemplated timeframe. Again, this
    fits in nicely with our desires).

E) Motorola presentation of estimated resources required for the MAGIC
    development. (We agreed it was in the right ballpark, by our judgement).

At this point, after a series of directed questions by me, we discovered
that the problem on schedule goes well beyond the availability of the Project
Leader. A complete team of engineers and layout designers was needed to be
hired incrementally to your current staffing plans. The design cycle overlays
on top of several others to support your 3/2 announcements so that other
resources, such as CAD equipment availability, would also be stretched above
their capacity. Finally, even if people and resources were available, our
requested schedule was about 6 months faster than your normal cycle.

The bottom line was that you could not even start our critical design
until mid-1983 and if you did, the earliest the first functional silicon would
be available would be at the end of 1984, a year later than when we need
production volume parts.

Although we were somewhat prepared for bad news from the Friday telephone calls, we were, frankly, very disappointed to find a "total bust".

Nonetheless, we continued our discussions and derived three potential alternatives to be evaluated:

1. MOS Group to subcontract the custom design to your San Francisco custom design subsidiary. This was determined as very high risk due to their lack of experience in devices of this complexity.

2. A separate custom design effort by General Instruments, under the systems-integrator role of Motorola. Mattel will bring Motorola and GI together if Motorola is willing to negotiate with GI to this end. (We are awaiting your indication of such willingness).

3. Mattel will seriously evaluate the possibility of utilizing a modified VMC device which is planned to be developed by Motorola in Japan. After some discussion, it was mutually agreed by Mattel and Motorola technical experts that the MAGIC chip would be a "superset" of the VMC. We owe you an answer on the feasibility of this approach, although the quick look it was given suggests that the extensions would be so substantive as to equate or approximate a totally new design.
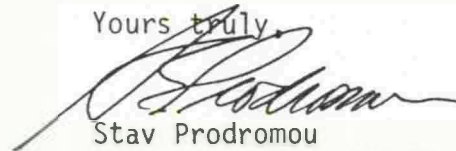
Because timing is critical, we agreed that alternatives 2 and 3 above would be evaluated in parallel.

Gary, the above is a lengthy summary and background but I felt it important to be sure we all understand where we now find ourselves.

I believe we are now at a crossroads in terms of a very promising relationship that is in the early stages of budding. I do not believe there is a high degree of optimism to be attached to this potential if Motorola walks away from the MAGIC chip. I also do not readily accept that all of the options available to Motorola have been fully exercised. While Tom Gunter's resources may be overcommitted, there must be some tradeoffs that can be made at your Group's level or within Gary Tooker's Sector. I want to urge you to take a serious look at these tradeoffs should the above alternatives not pan out.

I would be glad to visit with you or Gary Tooker at your convenience to discuss these issues. Please feel free to call me anytime.

Yours truly,

Stav Prodromou
Senior Vice President
Operations

SP:hf

cc: Gary Tooker
    Josh Denham