

10, 1982

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Make sure To (Kurt) Kevin
Have get Here is H/C's
copy them wish list for
F ADD VDP VDP enhancements.
Mark

FROM: Bob Hendren

SUBJECT: REQUESTED REQUIREMENTS FOR THE VIDEO CHIP TO BE USED ON THE 84/87 GENERATION OF HOME COMPUTER.

The attached listing represents the desired features requested to be part of the New S/C Leveraged Product as determined by the Video Team set up by Ron Johns.

Bob Hendren

FEATURE: TWO VDP ADDRESSES : (VDFADR) READ/(VDPADW) WRITE

BENEFIT: INCREASE INTERNAL CHARACTER MOVEMENT BY A FACTOR OF APPROX. SIX TO PROVIDE MORE SPEED IN ARCADE GAMES WHICH REQUIRE LARGE MOVEMENTS OF DATA FROM MEMORY TO SCREEN.

EXAMPLE: SCROLLING THE SCREEN DISPLAY, ON A PIXEL BASIS, TO DISPLAY A TOPOGRAPHICAL MAP DURING A BOMBING MISSION.

FEATURE: UP TO 32 OR MORE SPRITES ON A VERTICAL OR HORIZONTAL LINE.

BENEFIT: INCREASE GRAPHIC CAPABILITIES SO THAT ANY SCENARIO WOULD BE FEASIBLE.

EXAMPLE: BILLIARDS AND CENTIPEDE/ZAXON TYPE GAMES.

FEATURE: 64 SPRITE SIZES INDIVIDUALLY ASSIGNED. Center or edge compress.

BENEFIT: PROVIDE SIMPLE 3 DIMENSIONAL GRAPHICS CAPABILITIES AND REDUCE THE AMOUNT OF GRAPHICS DESIGN TIME AND NUMBER OF CHARACTERS NEEDED IN GROM. THIS WILL ALSO SPEED THE GAME EXECUTION TIME SINCE IT IS HARDWARE EXECUTED.

EXAMPLE: AIR OR SPACE CRAFT 'DOG FIGHT' SCENARIOS.

FEATURE: SEGREGATED SPRITE MOTION. ie. Whether a sprite is in motion or not depends on the individual sprite description.

BENEFIT: INCREASED INTERNAL PROCESSOR TIME. EASIER TO SMOOTH AND TIME PROGRAM FLOW. REDUCE TIME DEGRADATION DUE TO NON-MOVING SPRITES NOW HAVING TO BE DESIGNATED AS MOVING WHETHER THEY ARE OR NOT.

EXAMPLE: ANY PROGRAM OR LANGUAGE THAT MAY USE OR HAVE THE ABILITY TO USE MULTIPLE SPRITES SUCH AS X-BASIC OR LOGO.

FEATURE: FULL SCREEN SPRITE MOTION. ie. Don't have to worry about early clock bit being set. Smooth on or off each side of the screen.

BENEFIT: MAKE HORIZONTAL SPRITE MOVEMENT ON AND OFF THE SCREEN THE SAME AS HORIZONTAL MOVEMENT.

EXAMPLE: ARCADE OR EDUCATIONAL GAMES WHICH REQUIRE HORIZONTAL SPRITE MOVEMENT WITH WRAP AROUND.

FEATURE: DISPLAY CHARACTERS TO THE SCREEN ON PIXEL RATHER THAN CHARACTER BOUNDARIES.

BENEFIT: PERMIT SMOOTH SCROLLING AND PANNING OF SCREEN WITHOUT CAUSING EXTREME TIME DEGRADATION.

EXAMPLE: PARSEC & ALPINE TYPE GAMES OR UNDERSEA & SPACE TYPE GAMES WHICH REQUIRE SMOOTH MOVEMENT IN ANY DIRECTION.

FEATURE: TAKE OUT MULTI COLOR MODE FOR MORE IMPORTANT FEATURES.

FEATURE: ADD ABILITY TO USE OPTIONAL COLOR PER CHARACTER AS WELL AS COLOR PER BYTE WHEN IN BIT MAP MODE.

BENEFIT: SAVE VDP MEMORY AREA AND REDUCE THE AMOUNT OF PROGRAM NEEDED TO MAINTAIN COLOR TABLES. SPEED PROGRAM EXECUTION.

EXAMPLE: PARSEC WOULD HAVE REQUIRED LESS ROM CODE TO LOAD THE COLOR TABLES POSSIBLY REDUCING THE COST OF THE PACKAGE.

FEATURE: HIGH RESOLUTION MODE TO PERMIT ADDITION OF A HIGH RESOLUTION TERMINAL AS A PERIPHERAL.

BENEFIT: PROVIDE USE OF THE 99/4 IN INDUSTRIAL ENVIRONMENTS.

EXAMPLE: DETAILED GRAPHICS DISPLAYS FOR ENGINEERING APPLICATIONS AND EDUCATIONAL APPLICATIONS SUCH AS PLATO.

FEATURE: PROVISION FOR ON CHIP HIGH LEVEL GRAPHICS AND MATHEMATICAL MACROS TO BE AVAILABLE TO GPL OR 9900 ASSEMBLER PROGRAMS.

BENEFIT: PROVIDE FAST & SOPHISTICATED 3 DIMENSIONAL AND MATHEMATICAL ALGORITHMS FOR PROGRAMMER ACCESS. THIS WILL PREVENT THE DUPLICATION OF CODE IN ROM AS WELL AS INSURE ACCURATE AND CONSISTANT RESULTS.

EXAMPLE: PROVIDE A MEANS TO FOR MORE RAPID DEVELOPMENT OF FLAGSHIP ARCADE PACKAGES SUCH AS VECTOR FIRE 2320 AND BATTLEZONE TYPE PROGRAMS AS WELL AS PROVIDING A MEANS TO DEVELOP SOPHISTICATED ENGINEERING PROGRAMS.

FEATURE: ABILITY TO READ THE VDP REGISTERS.

BENEFIT: MORE INTERNAL PROGRAM CONTROL

FEATURE: SMOOTH VERTICAL SCROLLING & HORIZONTAL PANNING ON PIXEL AND CHARACTER BOUNDARIES.

BENEFIT: PERMIT SOPHISTICATED ARCADE STYLE GAME PROGRAMMING.

EXAMPLE: PROVIDE MEANS TO PRODUCE GAMES LIKE ZAXXON AND TURBO

FEATURE: REDESIGN OF MEMORY LAYOUT TO PROVIDE MORE EFFECIENCY.

BENEFIT: MORE EFFICIENT PROGRAM CODE.

FEATURE: COLOR AND GRAPHICS CAPABILITY ADDED TO TEXT MODE.

BENEFIT: PROVIDE A MEANS TO HAVE COLOR ON EDUCATIONAL OR HOME MANAGEMENT PROGRAMS WHICH ALSO REQUIRE 40 CHARACTER TEXT LINE.

FEATURE: ABILITY TO ZOOM TO ANY SIZE, ANY SECTION OF THE SCREEN.

BENEFIT: PROVIDE MEANS TO DO BOARD WAR GAMES WHICH NEED THE OVERALL PICTURE AS WELL AS A CERTAIN BATTLE SECTION OF THE MAP.

EXAMPLE: CIVIL WAR GAMES

FEATURE: 256 COLORS.

BENEFIT: ABILITY TO DO AND MORE REALISTIC GRAPHICS.

EXAMPLE: HIGH RESOLUTION CONTOUR MAPS

FEATURE: AUTO SPRITE KILL ON PRESET LIMITS.

BENEFIT: REDUCE AMOUNT OF PROGRAM CODE REQUIRED FOR SPRITE MAINTENANCE.

FEATURE: AUTOMATIC SPRITE COINCIDENCE CHECKING.

BENEFIT: REDUCE AMOUNT OF PROGRAM CODE FOR SPRITE MAINTENANCE

FEATURE: SEPARATE COLOR CONTROL FOR CURSOR.

BENEFIT: PERMIT CHANGING OF THE BORDER COLORS WITH OUT CHANGING THE CURSOR COLOR.

FEATURE: CHARACTER OVERLAY OF VIDEO SIGNAL WHICH WILL PERMIT ALL COLORS.

BENEFIT: PERMIT CREATION OF GAMES, EDUCATIONAL AND TRAINING PACKAGES WHICH WILL WORK WITH VIDEO DISC OR TAPE

EXAMPLE: FLIGHT SIMULATORS, CAR RACE GAMES, UNDERSEA GAMES

FEATURE: VIDEO TO BE RUNNING IN BACKGROUND WHILE PROGRAM IS OPERATING IN FOREGROUND.

BENEFIT: FREE UP MAIN PROGRAM TO EXECUTE AT FULL SPEED.

EXAMPLE: STAR FIELD MOTION IN A SPACE GAME.

FEATURE: SCREEN LINE LOCK WITH UNDER SCROLLING OR PANNING.
(SCREEN SIZE DEFINITION - WINDOWING)

BENEFIT: PERMIT COLUMN HEADINGS TO BE DISPLAYED WHILE COLUMNS OF FIGURES ARE SCROLLED UP OR DOWN.

EXAMPLE: MULTI-PLAN

FEATURE: ABILITY TO CHANGE INTENSITY OF DISPLAYED PIXELS AND CHARACTERS.
(256 LEVELS)

BENEFIT: PERMIT SHADING OF GRAPHICS OR GIVE ILLUSION OF DISTANCE.

EXAMPLE: STARS IN SKY OR LIFE LIKE GRAPHICS.

FEATURE: CHANGE BLACK INTENSITY SO THAT T.V. SCREENS DON'T RIP.

BENEFIT: PERMIT THE USE OF BLACK BACKGROUNDS WITH OUT THE RISK
OF THE CUSTOMER BEING IRRITATED.

EXAMPLE: SPACE GAMES

FEATURE: TAKE OUT BLEEDING.

BENEFIT: BETTER GRAPHICS TO KEEP AHEAD OF OUR COMPETITION.

FEATURE: SOLW SCAN T.V. WITH VIDEO COMPRESSION

BENEFIT: PERMIT THE USE OF COMPUTER AS AN AT HOME PRODUCT
ORDERING DEVICE

EXAMPLE: SEARS CATALOG DISPLAYED AT HOME AND ORDERS ARE INPUT
FROM YOUR HOME.

FEATURE: FOREGROUND/BACKGROUND COLORS FOR EACH CHARACTER IN REGULAR MODE.

BENEFIT: REDUCE PROGRAM DESIGN AND WASTE OF CHARACTERS.

FEATURE: INVERSE VIDEO (TWO INTENSITY).

BENEFIT: PROVIDE MORE SOPHISTICATED TEXT SCREENS.

FEATURE: BLINKING CURSOR

BENEFIT: ELIMINATE PROGRAM CODE NOW NEEDED TO ACCOMPLISH THE
TASK.

FEATURE: BACKGROUND FIELD HIGH LIGHTING.

BENEFIT: PROVIDE A MEANS TO HIGH LIGHT INPUT FIELDS.

FEATURE: ON CHIP ROM WITH CHARACTER SET.

BENEFIT: REDUCE AMOUNT OF ON-BOARD GROM CODE

FEATURE: CHARACTER UNDERLINING.

BENEFIT: PROVIDE MORE SOPHISTICATED WORD PROCESSOR OR HOME
MANAGEMENT PROGRAMS.

FEATURE: SUPPORT LIGHT PEN WITH 256 X 256 RESOLUTION.

BENEFIT: PROVIDE MEANS FOR GRAPHIC DEVELOPMENT AS WELL AS
ADDITIONAL APPLICATIONS PACKAGES.