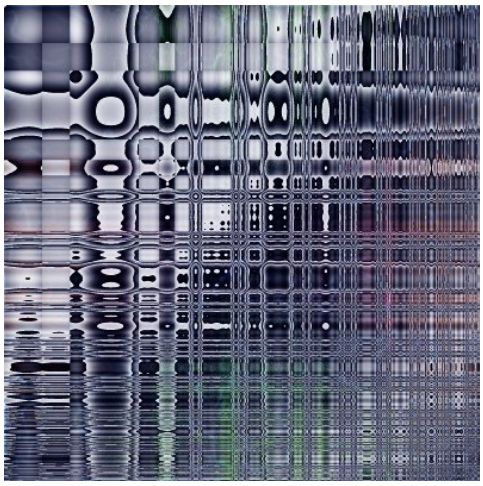
The ISENE Rom (IR-1A)

This 4K module image contains useful Time and Management
software for the amazing Hewlett Packard 41 calculator.
All the programs are in FOCAL (Forty One Calculator Language –
the ordinary keystroke user programs for the HP-41).
Requirement: Preferably an HP-41CL or an HP-41CX (or equivalent).



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NOTES (quick notes)

No real PDA can do without a quick notes taker.

The same goes for the best PDA ever created: The HP-41.

The simple feature list:

- Simple interface for adding new notes
- Listing notes (or printing them if a printer is attatched
- Editing, sorting and searching

Here is the key mapping (what shows in the programs menu is in parenthesis):

Label (Menu)	Description
NOTES	Starts the NOTES program. Shows some of the mapping for the top keys so that you don't have to remember this list. Pressing R/S will give you the version number of NOTES, another R/S will get you back to the mapping/menu..
N+	Enter the note in the alpha register. Then XEQ "N+". This is a global label so that you can assign it to a key for easy entry of new appointments.
LBL A (+)	Same as N+ above, but used inside the program.
LBL a (-)	Delete the current record.
LBL B (L)	List all notes. If you have a printer attached, it will print them.
LBL b (E)	Edit the current note (calls ED)
LBL C (?)	Search the notes file for string in alpha register.
LBL D (S)	Forces a sort of the notes file ("NOTES").
LBL d (/)	Forces shrinkage of the "NOTES"-file..
LBL E (*)	Go back to the menu.

CRYPT (HP-41 cryptography)

Introducing encryption to the HP-41

This cryptography program encrypts or decrypts an ascii Extended Memory (XM). Ypou can also temporarily view an encrypted file without substituting the file with the decrypted version.

The CRYPT program implements the Vigenere cipher with a key of your choice of up to 300 characters. By default it uses the range of characters from ascii code 32 (space) to ascii code 90 ("Z"), but you can choose any range above ascii code 32 - for example a range value of 90 to include lower case characters (ascii code 122 is "z").

If the key is at least as long as the file to be encrypted, you will actually get perfect security for the encrypted file. You will have what is known as the One-time pad

Here are the three functions implemented:

Function	Description
ENCR	Encrypts an ascii file. The file name must be in Alpha when you execute ENCR. The program first prompts for the character range (default 58 - press R/S to accept the default). It then prompts for the key (Alpha is set to ON). Enter the key to use for the encryption 24 characters at the time. As long as you fill the Alpha register with characters for the key, it will keep asking for more key - until you enter less characters than 24 - then it will commence to encrypt the file. The program resizes the memory to accomodate for a large key if necessary. After encrypting the file with the key, you get the message "DONE" along with a beep. All traces of the key have then been removed. Pressing R/S again will launch the EDitor (ED) with the encrypted file.
DECR	Decrypts the file (name in Alpha. Prompts for the range and the key (use the same range and the same key as when you encrypted the file. Again you will get a "DONE" and a beep when the process is completed. Pressing R/S again will launch the EDitor (ED) to let you view and edit the decrypted file.
VIEWCR	Lets you view an encrypted file. Instead of actually decrypting the whole file, you get to view each successive record. The program sounds a Tone 9 upon showing each record. The file remains encrypted in Extended Memory. After the last record is viewed, the program displays "DONE" and gives a beep. All traces of the key is removed.

REM (REMembering – event management)

Now your HP-41 can truly come to everyday use. With this program you can convert your calculator to a PDA. You can even synchronize it with Google Calendar and your mobile phone :-)

Move beyond the 10 alarms limit of the calculator. Let your calculator take care of remembering and keeping track of appointments. Some of the features include:

- Very easily enter new appointments
- List all appointments. If you have a printer, let it print them out
- Quickly edit appointments
- Show today's events

When first run, the program will create an XM file named “REMF” to store all appointments.

Here is the key mapping (what shows in the programs menu is in parenthesis):

Label (Menu)	Description
REM	Starts the REMembering program. Shows some of the mapping for the top keys so that you don't have to remember this list. Pressing R/S will give you the version number of REM, another R/S will get you back to the mapping/menu..
R+	Enter the date of the event. Enter the time of the event. In the alpha register, enter the message (up to 12 characters). Then XEQ "R+". This is a global label so that you can assign it to a key for easy entry of new appointments.
LBL A (+)	Same as R+ above, but used inside the program.
LBL a (-)	Delete the current record.
LBL B (L)	List all appointments. The appointments will be shown the way you enter new events, i.e. the alpha content will be active for each appointment shown, with the time in the X-register and the date in the Y-register. If you have a printer attatched, it will print out all the appointments in the storage format (the format used in the extended memory file "R" is "MM,DD:HH,MM:EVENTMESSAGE").
LBL b (E)	Edit the current record (calls ED).
LBL C (?)	Search the event file for string in alpha register.
LBL D (T)	Show the events of today (simply calls ALMCAT).
LBL d (S)	Forces a sort of the event file ("R") so that the events are in proper date/time order. This function is available because new events are added in the beginning of the file and this may not be where it should appear if sorted correctly.
LBL E (*)	Go back to the menu.
LBL e	Initiates the program (sets up the alarm calling ^^R - see below for technical info).

Technical notes:
The program will store the events in the format "MM,DD:HH,MM:EVENTMESSAGE" regardless of the date format you use on your calculator (MM,DDYYYY or DD,MMYYYY). This is done for sorting convenience.

When the program is initiated (via LBL e), it sets up an alarm that executes "R" every night. This is where the magic happens. "R" will go through the extended memory file "R" and cull all events for the day and make them into alarms, deleting them in the XM file.

With the help of a PC-side program, you can now even sync your HP-41 with Google Calendar and through that service keep your mobile phone calendar and HP-41 in sync! This requires you to have the PIL-Box or similar bidirectional communication with your PC and the EMU41 running on your PC (use Dosbox if you use Linux). Download the Ruby-script here.

Download the EMU41.INI (and edit it to suit your needs), the Dosbox config (edit the serial1 as needed - it is set for use with Ubuntu Linux 9.10) and the remsync config (Linux users should save remsync.conf as ".remsync.conf" while Windows users should save it as it is - without the period in front of the file name). For Linux users, read this post on how to get your HP-41 connected to EMU41 in Dosbox on your PC via the PIL-Box. Make sure you have Ruby installed as well as Ruby Gems and the gem called GCal4Ruby. To install this Ruby Gem on a Linux machine, type "sudo gem install gcal4ruby" in a terminal.

Before you can synchronize, you need to format the HDRIVE1 Lif-file: XEQ "NEWM" and press "001" to format the file rem.lif with only one file (the REMF). Then create the REMF file in the Lif-file: Enter "REMF" in Alpha, 126 in X and XEQ "CREATE". Finally create a file called "rem.lif" on your PC and make sure you edit the variable "Lif_file" (in ".remsync.conf") to point to "rem.lif". Note: for Windows users, edit remsync.rb so that you load the correct remsync.conf file (leave it somewhere and let the load command in remsync.rb point to where it is).

To synchronize, first ensure you have EMU41 running on your PC with your HP-41 connected (via the PIL-box or otherwise) and XEQ "REMSYNC" on your 41. The program will stop and display "RUN PC PRGM". You then run remsync.rb on your PC. When remsync.rb finishes, press R/S on your 41, and voilá! - you have sync'ed. You will now find that the next 25 or so appointments are the same in REM on your HP-41 and your Google Calendar. Only the start date/time and the titles are sync'ed to not eat all you Extended Memory on your 41. Try to keep the titles of your appointments short as you enter them in Google calendar (preferably 12 characters or less).

HOURS (hour regitration)

For consultants who need to track and register billable hours or for others in need of registering hours worked on projects or tasks.

When first run, the program will create an XM file named “HOURSF” to store all entries.

Here is the key mapping (what shows in the programs menu is in parenthesis):

Label	Description
HOURS	Starts the program. Shows the mapping for the top keys so that you don't have to remember this list. Pressing R/S will give you this menu again.
LBL A (H)	Add an entry. Enter the date, press ENTER and then the number of hours worked on a task that date. Write the task description in Alpha and press “A”. You may also access this task entry from outside the HOURS program by using the global label “H+” (assign it to a key if you wish)
LBL B (HTD)	Add an entry for today (Hours ToDay). Enter the hours worked on a task today. Write the task description in Alpha and press “B”. You may also access this task entry from outside the HOURS program by using the global label “HTD+” (assign it to a key if you wish)
LBL C (ED)	Edit the HOURSF file. You may also access this task entry from outside the HOURS program by using the global label “HED” (assign it to a key if you wish)
LBL D (CL)	Clear all entries (clears the XM file)
LBL E	Show the main menu.

You may also use the FILE program to edit or print the HOURSF file.

UAC (the Ultimate Alarm Clock)

The program that turns your HP-41CX (or 41C/CV with a time module) into the ultimate alarm clock. It gives your beloved calculator all the features of a very advanced alarm clock. It even lets you hear the time so you don't have to turn on the light to see what time it is :)

I have a passion for old Hewlett Packard calculators. I love to program these little beauties. Now and then I even make a very useful program such as this one. I have never seen an alarm clock that can do everything I wanted it to. So, I decided to program my HP-41CX to serve my needs. It has the features I want:

- ✔ Set the alarm to a specific time
- ✔ Set the alarm to a certain time from now
- ✔ Set the alarm to a preset time from now
- ✔ Move the alarm a ½ hour into the future
- ✔ Move the alarm anytime into the future
- ✔ Hold the alarm clock until you restart it
- ✔ When the alarm goes off, stop it by pressing any key
- ✔ When the alarm goes off, snooze by ½ hour
- ✔ Double-alarm (autosnooze); Alarm goes off, then again 10 minutes later
- ✔ Clear the next alarm
- ✔ Clear all alarms
- ✔ Hear the time!
- ✔ Hear when the alarm is supposed to go off!
- ✔ Hear how much time left until the alarm goes off!
- ✔ Set the alarm for each day throughout the week (daily alarms)
- ✔ Stop or restart the daily alarms

Here is the key mapping (what shows in the programs menu is in parenthesis):

Label	Description
UAC	Starts the program. Shows some of the mapping for the top keys so that you don't have to remember this list. Pressing R/S will give you the running clock. Pressing R/S again will give you the alarm catalog, then the version number of the UAC, then it returns to the mapping/menu. It may be useful to assign this function to TAN.
ALM	Set an alarm. Just enter the time and execute ALM. If the time greater than the present time, it will set the alarm for that time later today. If the time is less than the present time, it will set the alarm time to that time tomorrow. It may be useful to assign this function to SIN.
AL+	Enter the time from now you want the alarm to go off and execute ALM+. It may be useful to assign this function to COS.
LBL A (.5)	Postpone the alarm by ½ hour (both if the alarm is sounding or if it has not yet sounded). If the "wake-uo"-type alarms have been cleared (by pressing "C" or "c"), it will set an alarm ½ hour from now.

LBL a (+)	As above, but postpone the alarm by the amount you enter.
LBL B (8)	Set the alarm 8:10h into the future (to change this preset time, change line 28 in the program).
LBL b (9)	Set the alarm 9:00h into the future (alter by changing line 35)
LBL C (c)	Delete the next "wake-up"-type alarm.
LBL c	Delete all alarms. Execute WKR (see below) to reactivate the daily alarms.
LBL D (A)	Hear how long it is until the alarm goes off. Same principle as with SCLK - one low beep per 6 hours, then one high beep per hour, then one low beep per quarter. If the alarm has already sounded, it will first give a BEEP, then tell you how long since it went off (same principle).
LBL d	Hear when the alarm is supposed to go off. Same principle as with LBL D.
SCLK/ LBL E (T)	Hear the time. First it sounds 1-4 low beeps signaling which sector of the day the time is within: 0:00-05:59, 06:00-11:59, 12:00-17:59 or 18:00-23:59. Then 1-6 beeps signaling the number of hours within the sector, then 1-4 beeps signaling which quarter it is within the hour.
LBL e	"Hold" the alarm until you press R/S to let it continue again. This makes it possible to wake up in the middel of the night with a brilliant idea that you want to write down. Press "e" to hold the alarm until you are ready to return to bed. Then press R/S (or "e" another time and you still get your usual hours of beauty sleep.

When the alarm goes off, press any key to stop it. If you then press R/S, it will snooze for 10 minutes.

Set flag 2 (FS 02) to make the alarm "autosnooze" by automatically sound again 10 minutes after it first goes off. This is also a useful feature if you are hard to wake up.

The UAC gives you sound feedback for all the functions. This is done so that you know if you pressed the right button in the dark.

You may also want the WKA (WeeK Alarm) program as an add-on module to UAC. The program is made as an add-on because it is not part of the UAC core functionality and requires X-Functions and X-Memory. It is therefore not of value to those with a 41C(V) and a time module.

WKA makes it possible to set specific alarm times for every day throughout the week. First it will tell you that the week starts with Sunday (SUN) as day 0. Then it will ask for the alarm time for each day starting with Sunday. By entering 0, no alarm is set for that day. It may be useful to assign WKA to TAN-1.

To stop the daily set alarms, execute WKS (Week-alarms Stop). It may be useful to assign this function to SIN-1. To restart the daily alarms, execute WKR (Week-alarms Restart). It may be useful to assign this function to COS-1.

TIMER (sound alarm every X minutes)

A cute and useful little timer program.

It will sound two short, high tones every X minutes.

Simply enter the interval in minutes into X and do XEQ'TIMER and the calc will turn on every interval, sound the two high tones and turn off again.

This program is helpful if you want to keep tab on for instance every 10 minute interval.

D-W & W-D (Date to Week# & Week# to Date)

This is a simple date-to-week number-to-date converter.

The program converts a date to the ISO week number and a week number to the starting date of that week (Monday as specified by ISO). It takes the date in any of the HP-41 formats. The week number to be converted to the date (Monday) can be WW for the current year or WW,YYYY for any year.

The program is actually two programs in one; the D-W and the W-D.

Examples:

Enter (in DMY mode):

2,012006
XEQ'D-W
and you get:
1

Enter (in MDY mode):

11,2007
XEQ'W-D
and you get:
3,122007

Enter (in MDY mode):

11
XEQ'W-D
and you get:
3,132006

CJC (Calendar date – Julian date – Calendar date)

The easiest Julian Date converter ever.

To convert a date/time to Julian; Simply enter the time (optional) and date and do **XEQ'CJC** and you will get the Julian Date back as a result. Press R/S and you will get the Julian Time of the Julian Date. Press R/S again and you will get the Julian Date plus the Julian Time (the total)

To convert a Julian Date to calendar date; Simply enter the Julian Date (with decimals if you want to cater for the time of the date as well) and do **XEQ'CJC** and you will get the calendar date in X and the time of day in Y.

The CJC program converts back and forth and back and forth and back and...

The program recognizes the input to discern if it is a Julian Date number or a Calendar Date number.

Simple.

File management system

Here are two menu-driven programs for easy file management on the HP-41. While "FILEMAN" handles creation, deletion, clearing and save/get to/from HEPAX memory, "FILE" handles the contents of ASCII files. These programs requires the LIBXM and LIBHPX libraries. The function XMFILE? in the LIBXM will be skipped unless you have an HP-41CL. It is included for the added convenience of showing the user what file is currently handled at the start of these programs.

FILEMAN

The program shows the short form of labels A-E and then a-e as prompts:

- **"C:A D G:A D SK"**
- **"P CL S:A D FL"**

- LBL A: **C:A** = Create ASCII file (name in Alpha)
- LBL B: **D** = Create Data file (name in Alpha)
- LBL C: **G:A** = Get/retrieve ASCII file from HEPAX memory (name in Alpha)
- LBL D: **D** = Get/retrieve Data file from HEPAX memory (name in Alpha)
- LBL E: **SK** = Select file (name in Alpha) and set record to 0 (i.e. execute a SEEKPTA)
- LBL a: **P** = Purge file (name in Alpha)
- LBL b: **CL** = Clear file (name in Alpha)
- LBL c: **S:A** = Save ASCII file to HEPAX memory (name in Alpha)
- LBL d: **D** = Save Data file to HEPAX memory (name in Alpha)
- LBL e: **FL** = Run the "FILE" program (see below)

FILE

The program shows the short form of labels A-E and then a-e as prompts:

- **"+. .+ +1 +X ED"**
- **"- .+a -1 S ><"**

- LBL A: **+.** = Insert record (in Alpha) before current record
- LBL B: **.+** = Append record (in Alpha) after current record
- LBL C: **+1** = Jump one record forward
- LBL D: **+X** = Jump the specified number of records (in X) forward (or backward if X is negative)
- LBL E: **ED** = Edit current file
- LBL a: **-** = Delete current record
- LBL b: **.+a** = Append Alpha to current record
- LBL c: **-1** = Jump one record backward
- LBL d: **S** = Sort file alphabetically
- LBL e: **><** = Trim file (i.e. run FLSZ- from LIBXM)

Libraries & utilities

Essential libraries for handling of XM and HEPAX files

LIBXM

This library contains functions for handling eXtended Memory files:

- FLSORT: Alphabetically sorts an XM file (file name in alpha)
- FLSZ+: Ensures the XM file (name in Alpha) has room for 4 more records
- FLSZ-: Trims the XM file (name in Alpha)
- SKPTACR: Sets the file pointer of file to 0. Creates file if needed
- XMFILE?: Return the current XM file name in Alpha.
  This function requires the an HP-41CL to actually execute.

LIBHPX

This library contains functions for handling HEPAX files:

- HSAVEAS: Saves XM ASCII file (name in Alpha) to HEPAX memory
- HSAVED: Saves XM data file (name in Alpha) to HEPAX memory
- HGETAS: Retrieves HEPAX ASCII file (name in Alpha) to XM
- HGETD: Retrieves HEPAX data file (name in Alpha) to XM
- HRESZFL: Resizes HEPAX ASCII file (name in Alpha) to specified size (in X)

DMD

This little function switches a number between the formats dd.mm and mm.dd (where “dd” is the day of the month and “mm” is the month number).