(051) 8705

Upstate

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OUR NEXT MEETING will be on Thursday   THE JUNE Meeting will be

MAY 21 1987 at 7:30 pm   JUNE 18,1987 at 7:30 pm

PLACE: CAPITAL DISTRICT PSYCHIATRIC CENTER

New Scotland Ave. Next to Albany Medical Center

The program for the MAY meeting is as follows:
A demonstration of Asgard software by Bob Burgess.
A presentation of Multiplan templates.
A mystery guest will also be on hand.
The Software Library Club will be present.

A NOTE to other Users Groups: The articles printed in the Upstate Newsletter
may be reprinted if proper credit is given to the author and to the Upstate New
York 99/4 Users Group.

UPSTATE 99/4A USERS GROUP
P.O. BOX 13522
ALBANY, N.Y. 12212

VOL V, NO. 5   MAY 1987   Arthur Payeur, Temp. Editor

These are known as PROGRAM files in
TI-99/4a language (and correspond
to .COM or .CMD files in other
systems). TI Basic and XB programs
are also stored in this format,
which can be saved to and loaded
from cassette as well as disk. The
other kind, usable only with a disk
system, is the assembly tagged
OBJECT file. In normal usage of
the TI-99/4a, object files are
created to be relocatable in memory
by the loader, and the programmer
does not have to know explicitly
where the loader has placed them,
and calls their entry points up by
name. None of the primitive USR or
suchlike business. There are 4
(maybe 5) modules available which
can load and run machine language
programs. They all have different
capabilities and limitations.

(more next month)

Upstate News
     Rich Lane is looking for ss/sd disk drives. If you have one to
sell see Rich at the Meeting.

     Mike Bloss has the following for sale:
          Console(silver and black), PEB with 32k and rs232 interface,
          TI acoustic modem,TI Writer, Multiplan,Scott Foresman
          modules,Music Maker, TE II , and many other cartridges.
     Call Mike at 371-1041 -- Price is $350.00 for everything.

     The club still needs a volunteer for editor of the newsletter and
speakers at meetings.

                                        Arthur F. Payeur

MACHINE CODE MASTERY

FUNNELWEB FARM

The ultimate way to get at
the real potential of the TI-99/4a
is to write or run machine code
programs. The next best thing is
TI-Forth, but that's grist for
another mill. Originally TI did
not intend that users would ever
write their own machine language
programs and provided no hooks at
all in console Basic to link to
machine language routines, or to
allow direct access to machine
functions. The same sort of
corporate marketing contempt for
the customer led them to put
calculator keys on the original
TI-99/4. They weren't and aren't
alone in that attitude of contempt
for the user .... look at the IBM
PCjr years later, or the Apple
Macintosh.

And when they did bring out
the expansion system, it still did
not realize the potential of the
TMS-9900 processor because of the
fractured memory map and conversion
of the 16 bit data path to
successive 8 bit slices for all but
a small part of CPU memory space,
adding that insult to use of
external memory with wait states.
However when TI finally made
machine code available to users
they did it in style, adapting
their mini-computer software for
the purpose. Some of the programs
supplied still contain traces of
their origin, such as memory mapper
instructions relevant only to the
larger 990 minis.

First let's look at how
machine code programs are recorded
as disk or cassette files, and then
survey the modules which allow
these files to be loaded and
executed. These files come in two
forms. The most direct form is as
memory image files, in which the
actual contents of a block or
blocks of memory are stored, with
control information appended.

WHAT DO YOU MEAN THE JOY STICK WON'T GO UP?

When I first saw Mack McCormick's ALPHA LOCK fix in the
February MICROpendium my initial reaction was if it's really
this easy TI would have built it in. After seeing the
modification in several other newsletters, I decided to see
for myself if it worked. Still not being too brave I
decided to try it on the kid's computer first. Many of the
articles talked about cutting circuit clad on the key board.
Not being a big fan of those kind of modifications I decided
to look for another way. After disassembling the computer I
began to look for places to neatly attach the diode. Upon
close examination the mother board yielded an excellent way
to attach the one diode required. Assuming you have the
same circuit board that is in the two computers I am
currently running the location is easy to find. Place the
circuit board in front of you facing in its normal position
(chip side up and keyboard connector in the lower left-hand
corner). Count the keyboard pins (from left to right) until
you locate pin six. Follow the clad up the board and to the
left (it may be necessary to turn the board over) until you
locate where it connects to a 470 ohm resistor (yellow
violet brown). Unsolder and lift one side of this resistor
(R339). Attach and solder a small diode to it. I used a
1N914 because I had lots laying around. The cathode
(banded) end should be facing the rear of the board. Insert
a piece of heat shrink tubing over the pair and insert the
remaining end of the diode through the hole you removed the
end of the resistor from and solder. After reassembling the
console I spent over an hour testing the console to see if
any side effects would rear their ugly heads. I could find
none. The ALPHA LOCK still worked normally The joy stick
would respond in the up direction reguardless of the
position of the ALPHA LOCK. All this was a month ago and
the kids have reported no strange problems whatsoever.
Before starting this article I first modified this consule
partly to remind my self of all the details and partly
because I wanted to make the change anyway. So why didn't
TI build it in themselves?

                    Rich Lane