

EYROFORTH 2020 "ROME"

Preparing for 64 bit
(Praeparatio ad LXIV frenos)

```
-1.0 0 UD.R  
340282366920938463463374607431768211446 ok
```

Nick Nelson

Slide 1

EYROFORTH 2020 "ROME"

Preparing for 64 bit

Critical differences

2

Careless Extern: declarations don't work any more
e.g. Enumerations are not ints

Nick Nelson

Slide 5

EYROFORTH 2020 "ROME"

Preparing for 64 bit

Why 64 bit anyway?

Numerical accuracy?



Addressing range?



Interface with:
a) Operating system
b) Libraries



Nick Nelson

Slide 2

EYROFORTH 2020 "ROME"

Preparing for 64 bit

Critical differences

3

Anything ending with a _t
The good news is, the Linux 2038 problem goes away!

Nick Nelson

Slide 6

EYROFORTH 2020 "ROME"

Preparing for 64 bit

Previous experience?

16 bit to 32 bit
FIG-like 16 bit
MPE Forth on WIN32S
1993

Can't remember a thing about it!

Nick Nelson

Slide 3

EYROFORTH 2020 "ROME"

Preparing for 64 bit

Solutions

1

A bit radical, this.....
Get rid of @ and !
a) Use VALUES instead of VARIABLES
b) Fetch / store ints in structures using L@ and L!

Nick Nelson

Slide 7

EYROFORTH 2020 "ROME"

Preparing for 64 bit

Critical differences

1

A CELL is no longer an int
Int is still 32 bits
Therefore, @ and ! don't work with ints any more

Nick Nelson

Slide 4

EYROFORTH 2020 "ROME"

Preparing for 64 bit

Solutions

1

Even more radical...
Get rid of fetch & store completely
Access structure elements like VALUES
See my main paper

Nick Nelson

Slide 8

EGROFORTH 2020 "ROME"

Preparing for 64 bit

Solutions

2

- a) Go through every Extern: and ensure prototypes match exactly
- b) Go through every type definition and ensure size is correct

Nick Nelson

Slide 9

EGROFORTH 2020 "ROME"

Preparing for 64 bit

Did it work?

Bit early to tell!

Nick Nelson

Slide 11

EGROFORTH 2020 "ROME"

Preparing for 64 bit

Solutions

3

Check every access to to things that end in _t

Nick Nelson

Slide 10