Chapter 1: Introduction

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The

difference

between

ANSI-C. and K&N-C

(1) Function Prototyping : ANSI-C supposts s*t*rong type chicking, it enables the compiler to check for the function calls in the user prg that passes invalid no of arg, return type of the function. Whereas K&R -c compiler wont fix this error and it may lead to pag crash whe they are executed (2) Support of constant and volatile keyword:

Constant keyword declares that some data cannot be changed. Volatile keyword spuities that value of some variables may change asynchronou*s*ly. Not Supported in the QR-CO

Ex Vol*a*t*ile* chás y por*t = 0X7714;*

it char ch #port; 10\_TYPE

en bak chiz xport;

I LC TIME

LC - NUMERIC. - (3) Supports boid character and Internationalisati

bridged character uses more that one byte of stora per character. ANSI-C support setlecate function which allows user to specify the format of date and sit nos in different countries o chas setlocate (int category-*co*nst chas e l*oc*ate

date number which (4) Permits function pointers to be used whail

deferending

Wid

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ANST

void foo (double xyz, chas stemp); void ex funpt) (double than & foo.

to0 (12:3\_, "Hi");\_ kfr{lefumpt) (12:3,"Hi");

4 funpt (12.3. "Hi"); - ANSI C specifies that a function ptr may be

used as a function name. Mo dereferencing i It is need when calling a function whose xil adder is contained in the pointer & Difference Between ANSI-C and C++

\_ANSI-C\_

C Cat (1) Stures KER-C defaults. It requires that

Function declaration for all functions must be any function that are declared or defined referenced before their that can be declaration in the pag referenced.

*is acc*epted. Evo (2) vaid 100 12

void foo (); its its equivalent in

equivalent in Cat is: ANSIĆ is

void foo (...) This means that fun foo means the fun too I may not accept any can be called with arguents

void

foo(void):

any no. of actual

arguments (3) It does not employ

type safe linkage.

preferenced

It incepts external function names for type safe linkage.

of

invalid

declared

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& ANSI-C also defines a set of C- preproussor symbols

which may be used in the user pag and are assigned values at compile time

The various symbols are: - STOC : This mauro is used as a test macro that is if its value is '1 il is a ANSI-C compiler if o, some other compiles

LINE : It displays the line number of a sre fill for which the symbol is referenced. SFILE : It displays the file name that contains this symbol -DATE - It spreifies the date of when the file was somp*iled* captarza...

in njeno je do - POSIX STANDARDS Der bottom

\_Many version*s* of *UN*IX *ex*its today and each *of* them provide its own set of API's hit is difficult

for system developer to create the applications that can be posted on different version of UNIX

- To overcome this the IEEE society found the Special task force called PO$I 1 to create a set *of*

standards for operating system interfaces POSIT. 1

*T*his committee proposed a set *of* standards for base OS API's which specifies for manipulation of files and processes

POSTX. Ibu

This committee proposed a set of standard API'S for real time os which included IPC.

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easily

**na**

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POSIX....!

This standard specifics multithreaded

programming interface.

\* POSIX'S TEST MACROS!

. POSIX JOB.CONTROL i This macro supports *Style Di*stribution

the BSD style job control. s – POSIX- Save B-ID : Here each process running en

the system keeps the set VID and set GID so that it can change the effective VID and GID to those values via sit VID and

set-GID. A POSIX-CH*O*WN - RESTRI*C*TED :$k this macro\_value is t it changes the ownership of the file otherwise only priveleged user may change the owner ship of the file o n - POSIX-NO\_ TRUNC of the macro value is al any long path name passed to it is truncated to nami\_max (MAME-MAX) *bytes* otherwise en ***e*ssor is** generated – POSIX*\_V*DISABLE : Ik the macxo value is hy t*here i*s no di*s*abling characters for *s*pecial chara*cters*

for all terminal device files to \* LIMIT CHECKING AT COMPILE TIME AND AT

RUN TIME: Jo find actual implementation configuration we can use sysconf, pathconf and pathconf functions at hun-time

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yey

-PosTY *VER*SION

Sysconf : This is used to query the system-wide configuration limits that are implemented on a given system al pathconf : It is used to query file related configuration limits where it take file path name **as' argument** pathcong. It is used to query file related configuration limits where it take file. descéptors as its arguments.

-

#include <unistai

h vnte long sysconf (const int limit name); long pathc*ó*nffconst\_shas xpathname,

& const int limit name); i long feath conf (const int fdes, const

ent limit name) MIT-X1209

\* The following is a list *o*f POSIX. 1- defined constants - in the <limits. hy header: XAM\_MITYAJIA XTROT I compile time limit Min. Value Meaning i -POSIX\_CHILD\_MAX 6 8 Max. no. of child processes

that may be created at

any one time by a

I process POSIX\_OPEN-MA*X* 16

| Max. no. of files that

may be opened simulta

neously by a prouss. PO*SIX-PATH\_M*AX, 2*55*, Max no. of characters

allowed in a file name

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1h

\_POSIX\_NAME-MAX

Max. no of characters

allowed in a file name. -POSIX.LINK-M*A*X

Max no. of links a file

may have . POSIX\_STREAM. MAX

Max. no of 1/0 stuams that a may be opened simultanea

Cously by a process \* The followed is a list of Posix. 1b - defined - *con*stants : Compile time linit Min. Value Meaning H-PO*SİX A*IO-MAX

1 No. *o*f simultaneousty

asynchronous i/o H-POSIX*\_*AI*O*-LISTIO-MAX

Maž no. of operations

in one listio -P*OSIX \_*TIMER - MAX

Max no. of timers that can be used simulta

neously by a process. *- POSI*X-D*EL*A*YT*IME-MAX

Max no of over runs

allowed per timer - PO*SIY*\_R*TSIG-MA*X

Max no. of real time signals.

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\_\*' FIPS *(S*tandards) : \_

Federal Information Processing Standards 2

It is a guideline for standards. These guidelines have been extra*c*ted from POSIX.1

standards. If the system batisfies the

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following features thin it is said to be implemented with FIPS Stands

J. It should support Job Control 2. It should support sit VID and set GID

functions or 3. It should not support long path names (4. – PO*SI* X\_*CHOWN*-RES*TRIC*TED must be de*f*ined \_\_. expli*ci*tl*y.*

A 5. - POSIX\_VDISABLE must be define*d* s 6. READ and WRITE API should return the no. of

bytes that have been texted after API has 196 been interrupted by signals. In

7. GID of newly created file must inhenit the

GID of i*ts c*ontaining dir*ect*ory: cunha \* API Character*istics* :

- Most of the API's return an integer value which indicates the termination status of their

execution. If an API return t, it means that the LAP*I e*xec*ut*ion has *f*a*ile*d an*d* a global variabl*e*

"errone" is set with an error code. The variable perror displays the message of the exror code to the standard output of the log files.

The various error code status are: EAC*CE*SS\_! A proces*s d*oes not have access - p*e*smis*sion t*o perform an operatione EPERM It means an API was aborted as the calling prouss does not the superuser privinges.

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have

BADF : It means an API was called with an invalid file descriptor ENDENT : It means an invalid filename was *\_s*pecifie*d* to an API,

*EINIR*: which means an API\_*ex*ecution was

aborted due to signal interruption EAGAIN : This means an API was aborted because a

some of the system resources requested were tempora*rily* unavailable. Ima ENOMEM : which means the API was aborted because a êt could not allocate dynamic memory.

EIO: An i/o erros encountered in an API -execution

ECHILD which means a process dois not

have any child process which it is waiting for?

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