## Chapter 2

# Force XXI Battle Command – Brigade and Below in the TI

The FBCB2 is the main ABCS component on the battlefield interfacing with the TI. This chapter discusses the functional description, hardware configuration, and operational software of the FBCB2.

## FUNCTIONAL DESCRIPTION

2-1. Information technologies allow timely digital information to be acquired, changed, and employed on the battlefield. This information is tailored to the needs of each decision-maker, shooter, and supporter. Digitization provides a clear, accurate vision of the battlespace. In the past few years, the Army has upgraded weapon systems to use emerging digital technologies. The results have led to the integration of technology across the entire force.

2-2. The maneuver force at brigade and below use the FBCB2 digitization tool. The FBCB2 computer host (AN/UYK-128 ()) and the software package are collectively referred to as the FBCB2. The FBCB2 uses C2 software and are linked together in a network by tactical radio systems. Digitization provides communications and processing capabilities that impose control over the battlespace dimensions of speed, space, and time. This gives the warfighter significant advantages in C2 and SA.

2-3. The FBCB2 system is a suite of applications and hardware. It provides on-the-move, real-time, and near-real-time SA and C2 information to combat, CS, and CSS from brigade to the platform and soldier level. The FBCB2 uses the JVMF to send and receive messages on the battlefield, regardless of task organization. The FBCB2–

- Is user-owned and -operated.
- Improves combat effectiveness of the force.
- Provides up-to-date combat situation data based on echelon and location: friend and enemy, air/ground unit position, and map/terrain/elevation data.
- Generates and disseminates messages and message acknowledgments: orders and requests, fires and alerts, and reports.
- Generates and disseminates overlays on the situation posture: intelligence, obstacle, operations, control measures, and geometry data.
- Semiautomatically exchanges selected mission-critical data between FBCB2 and other ABCS component systems.

2-4. The FBCB2 imports the following mission-critical data from other ABCSs:

- CSSCS – location of supply points.
- MCS – field orders and overlays.
- AFATDS – fire support (FS) messages.
- ASAS – intelligence picture.
- AMDPCS – air picture, including threat-warning messages.

2-5. The FBCB2 exports the following mission-critical data to other ABCSs:

- CSSCS – rolled-up logistics status at company level and personnel status.
- MCS – ground and air unit SA positions.
- ASAS – ground and air unit SA positions and spot reports.
- AFATDS – fire requests and subsequent FS messages.

2-6. Figure 2-1 shows the FBCB2/ABCS interfaces.

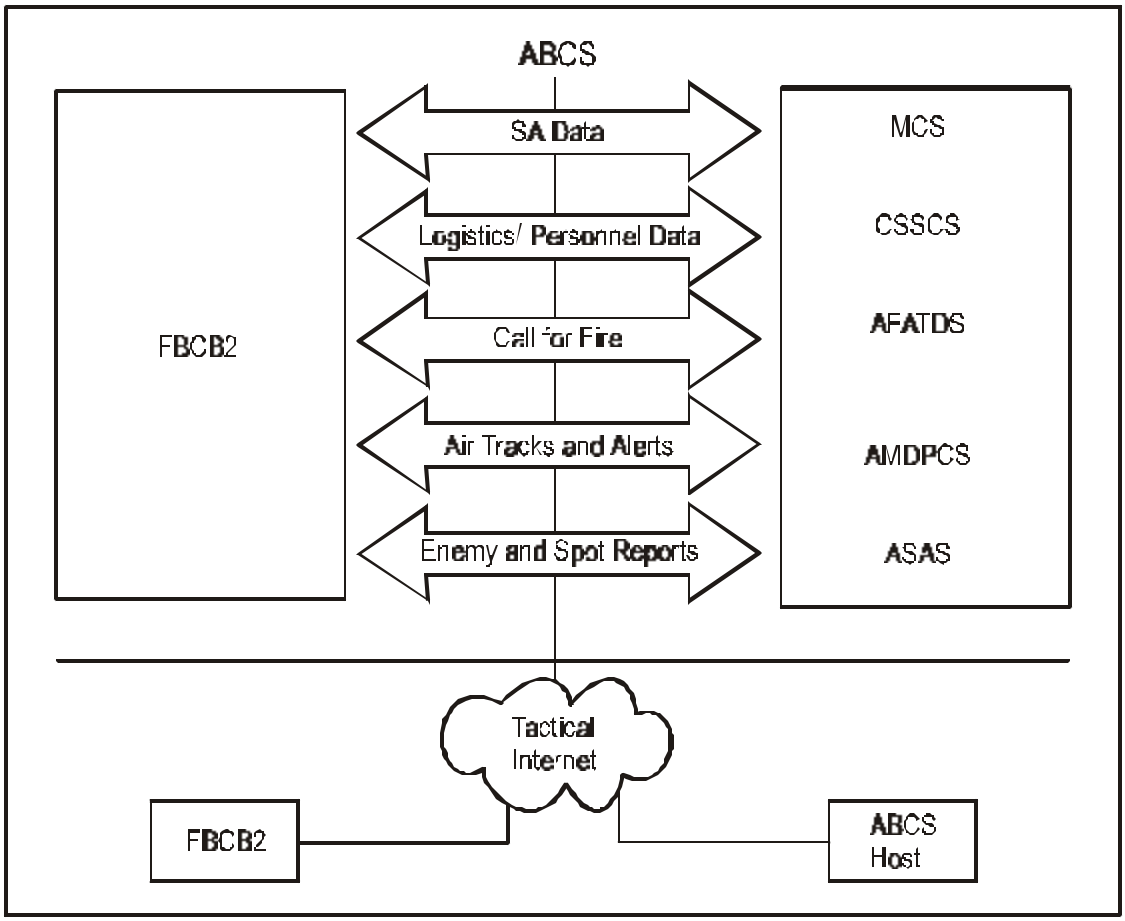


**Figure 2-1. FBCB2/ABCS Interfaces**

### C2

2-7. C2 is the direction by a commander over assigned forces in the accomplishment of a mission.

### SA

2-8. SA is the understanding gained through decisions made from knowledge based on accurate and real-time information of friendly, enemy, neutral, and noncombatant locations. SA is a common, relevant picture of the battlefield scaled to a specific level of interest and special needs. It allows each unit to share information with other friendly units. Units share this information both horizontally and vertically, in near real-time. Digitization greatly enhances battle command by allowing the timely transfer of orders and graphics instantly to units. Combined, these FBCB2 capabilities act as force multipliers. They provide rapid synchronization, even on the move.

2-9. The FBCB2 is common to all aspects of the digitized battlefield; selected individuals in platoons and companies each have one. The FBCB2 is located in most C4 platforms and TOCs.

2-10. The FBCB2 provides–

- Sharing of SA.
- Navigation enhancements.
- Force synchronization.
- Logistics control/utilization improvements.
- Ability to operate on-the-move.
- Better integration of sensors.
- Fratricide reduction.
- Designations of far-targets.
- Massing of forces/fires.
- Improvements for mission planning.
- Additions to decision support tools.

## HARDWARE CONFIGURATION

2-11. Hardware configurations and components vary by system. Figure 2-2 shows the AN/UYK-128 () computer set. The paragraphs below discuss the components of the AN/UYK-128 ().

### COMPUTER PROCESSING UNIT (CPU)

2-12. The CPU is the major controlling component of the AN/UYK-128 (). The majority of the functional items are contained or housed within the CPU. The CPU provides the interface for other equipment, power management, and power on self-test. It provides communications with the display unit, keyboard unit, and removable hard disk drive cartridge (HDDC). The CPU contains a circuit breaker that provides an additional level of protection by shutting off the system if an over voltage or over current condition is detected. The circuit breaker must be reset before turning on the system.

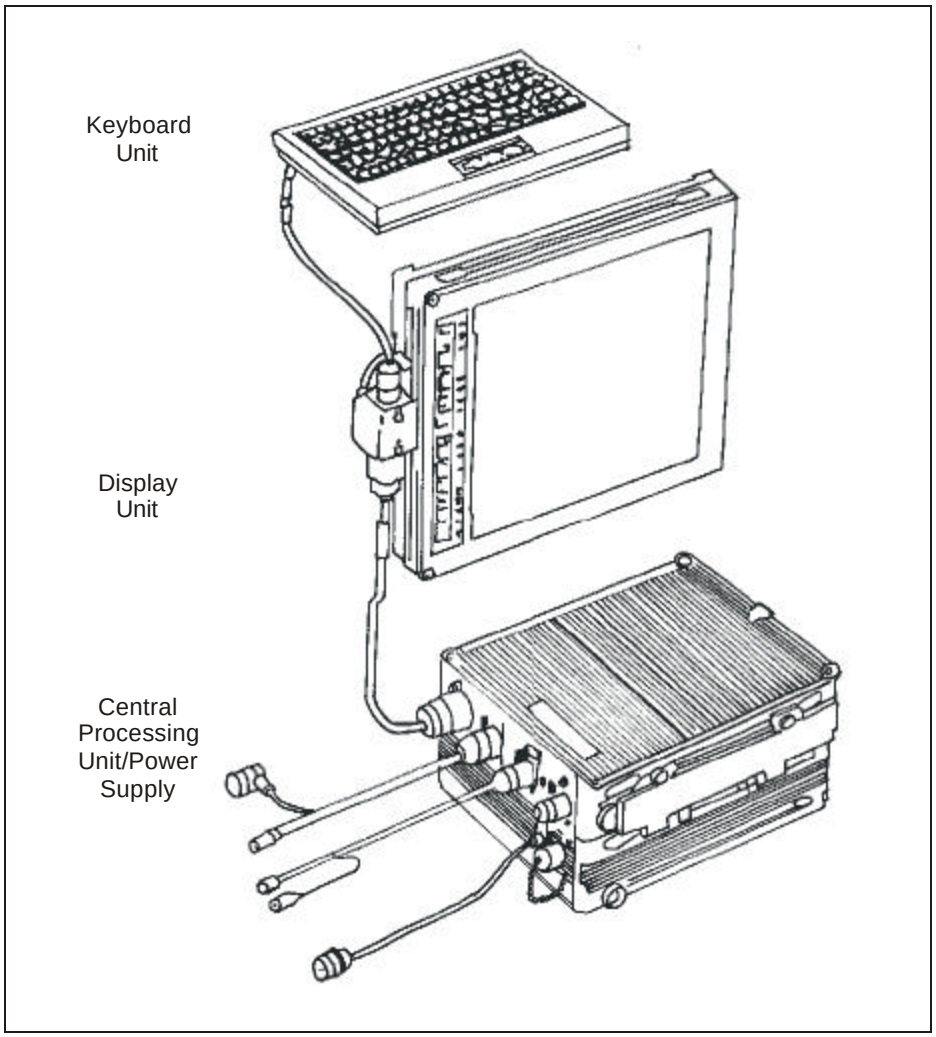


**Figure 2-2. AN/UYK-128 () Computer Set**

## DISPLAY UNIT

2-13. The display unit provides the video display and consists of the following major input devices:

- Liquid crystal display (LCD) with backlight.
- Touch screen.
- Controls and indicator panel.
- Direct connection to the keyboard unit.
- Eight-button function bar (available on the -3 type screen [10.4-inch]).

2-14. The LCD/backlight provides the main display for the AN/UYK-128 (), as well as illumination for the display. The user can use the touch screen to input information and commands by using buttons displayed on the screen. Figure 2-3 shows the -3 type 10.4 inch display unit with eight-button function bar, and Figure 2-4 shows the 12.1 inch display unit.

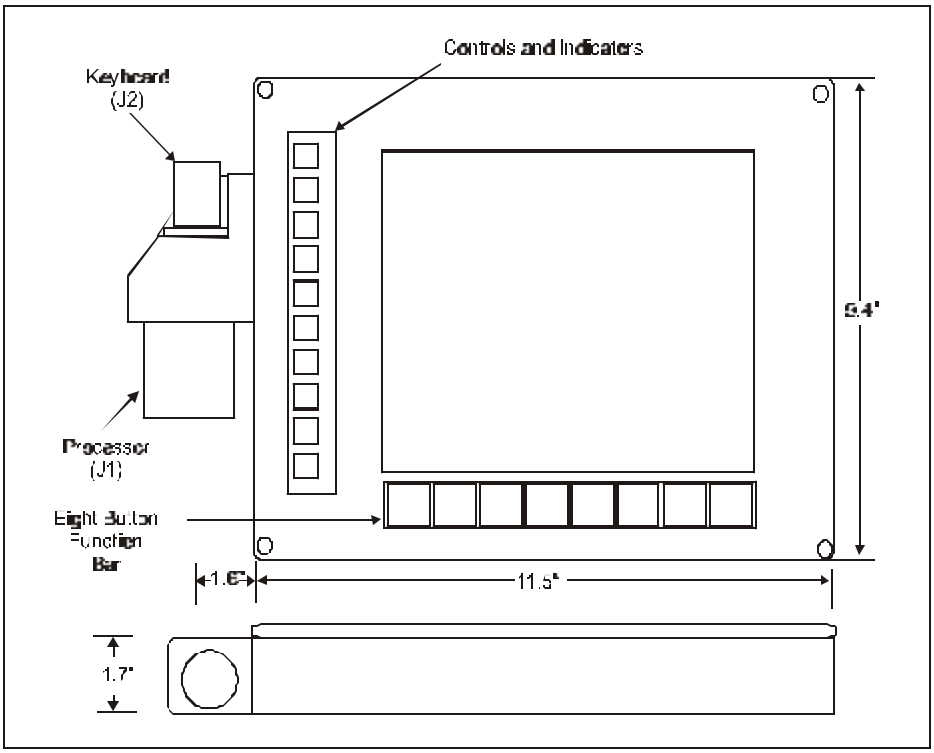


**Figure 2-3. Display Unit (-3 Type 10.4 Inch with Eight-Button Function Bar)**

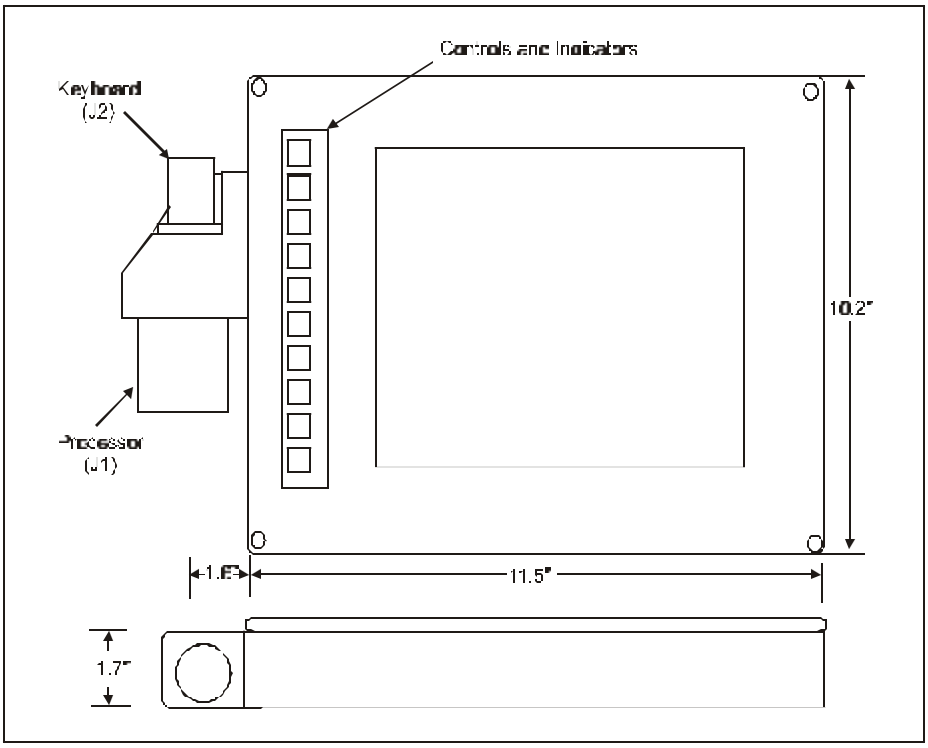


**Figure 2-4. Display Unit (12.1 Inch)**

## Controls and Indicators

2-15. The detachable display unit is joined to the keyboard and has controls that the operator uses to operate the AN/UYK-128 () computer. Figure 2-5 shows the operator control and indicator panel. The layout of the controls and indicators is the same for both the 10.4 inch and 12.1 inch type screens. The controls and indicators for all screen types are located on the front and to the left of the LCD on the display unit.

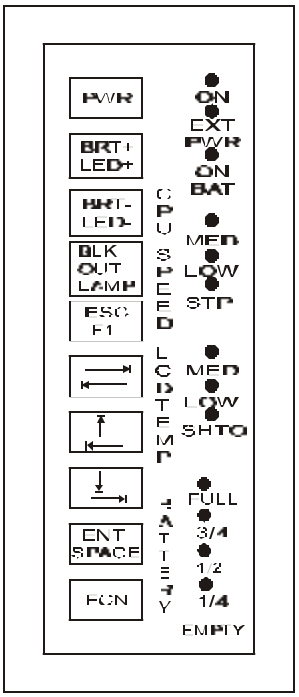


**Figure 2-5. Operator Control and Indicator Panel**

2-16. The eight-button function bar is located only on the -3 type screen of the 10.4 inch display unit. The -3 type screens are installed only in M1 Main Battle Tanks and M2 Bradley Fighting Vehicles to facilitate navigation and combat message preparation. This permits the vehicle commander to access the system from the screen for those identified functions. The function of the eight-buttons (see Figure 2-6) is duplicated on a standard keyboard by using the [ALT] key in conjunction with [F1 – F 8] keys. Table 2-1 explains the function of each button

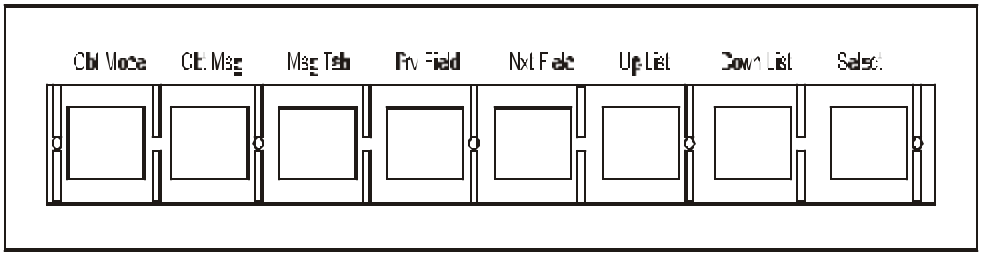


**Figure 2-6. Eight-Button Function Bar**

**Table 2-1. Eight-Button Function Bar**

| Button | Control | Function |
|---|---|---|
| Combat Mode | [Cbt Mode] | Toggles the operations main screen between three modes:<br>• Mode 1 displays the operations main screen with SA display area, function bar, and Omni Pan display box.<br>• Mode 2 only displays the SA display area and Omni Pan display box.<br>• Mode 3 only displays the SA display area. This function is replicated on the keyboard using [ALT] + [F1]. |
| Combat Messages | [Cbt Msg] | Opens the combat messages dialog box. This provides access to four short message forms (SALT, CFF, MEDEVAC, and NBC 1). This function is replicated on the keyboard using [ALT] + [F2]. |
| Message Tab | [Msg Tab] | Cycles through the four message tabs in the combat message dialog box. It brings up the combat message templates if not already up and visible on the screen. This function is replicated on the keyboard using [ALT] + [F3]. |
| Previous Field | [Prv Field] | Is used in the preparation of the combat message templates. Selecting this button moves the focus from the current data entry-field to the previous one. A bold border around the data entry field indicates the one in focus. This function is replicated on the keyboard using [ALT] + [F4]. |
| Next Field | [Nxt Field] | Is used in the preparation of the combat message templates. Selecting this button moves the focus from the current data entry-field to the following one. A bold border around the data entry field indicates the one in focus. This function is replicated on the keyboard using [ALT] + [F5]. |
| Up List | [Up List] | Is used in the preparation of the combat message templates. Selecting this button moves the focus up the list from the current data entry-field. A bold border around the data entry field indicates the one in focus. This function is replicated on the keyboard using [ALT] + [F6]. |
| Down List | [Down List] | Is used in the preparation of the combat message templates. Selecting this button moves the focus down the list from the current data entry-field. A bold border around the data entry field indicates the one in focus. This function is replicated on the keyboard using [ALT] + [F7]. |
| Select | [Select] | Actuates the button or feature currently in focus. This is equivalent to clicking the left mouse button on a feature that is outlined in bold. On the combat message templates, this can either be a data entry-field or template execution button. This function is replicated on the keyboard using [ALT] + [F8]. |

## KEYBOARD UNIT

2-17. The keyboard unit provides the major portion of the user input. Commands can be issued and messages typed via the keyboard. The keyboard unit mouse provides easy navigation within the graphical environment.

### Controls and Indicators

2-18. The keyboard unit interfaces to the computer via a connector on the display unit. It provides standard functionality equivalent to a 101-key Qwerty keyboard. Keyboard lights for Cap Lock [CAPS], Num Lock [NUM], and Scroll Lock [SCROLL] are located at the bottom left of the keyboard unit. The [Space Bar] duplicates the functionality of clicking the left/top mouse button. Combining the [Ctrl Key] and [Space Bar] duplicates the functionality of clicking the right/bottom mouse button. The [Tab] and [Arrow] keys move the cursor around the screen. Table 2-2 lists the keypad keys and their functions.

**Table 2-2. Keypad Keys and Functions**

| Key | Function |
|---|---|
| [F1] | Activates the Map function. |
| [F2] | Activates the Filters function. |
| [F3] | Activates the Combat Message function. |
| [F4] | Activates the Long Message function. |
| [F5] | Activates the Status function. |
| [F6] | Activates the Administration function. |
| [F7] | Activates the Application function. |
| [F8] | Activates the Help function. |
| [Alt] + [F1] | Activate the Combat Mode function. |
| [Alt] + [F2] | Activate the Combat Messages dialog box. |
| [Alt] + [F3] | Activate the Message Tab function. |
| [Alt] + [F4] | Activate the Previous Field function. |
| [Alt] + [F5] | Activate the Next Field function. |
| [Alt] + [F6] | Activate the Up List function. |
| [Alt] + [F7] | Activate the Down List function. |
| [Alt] + [F8] | Activate the Select function. |

### HDDC

2-19. The HDDC provides most of the users' storage capacity. It contains the operating system, the FBCB2 software applications, and a majority of the information received and/or processed by the user. The HDDC comes in a removable cartridge and is connected to the AN/UYK-128 () through a storage bay in the CPU.

## OPERATIONAL SOFTWARE

2-20. The FBCB2 software application is the same on all computer platforms. The AN/UYK-128 () computer system is the primary FBCB2 software host that interfaces to the INC. The AN/UYK-128 () computer provides the host with the capability to display C2 and SA data received via the FBCB2 software, Transmission Control Protocol (TCP), and User Datagram Protocol (UDP) interfaces to the INC. Figure 2-7 shows an example of the FBCB2 operations main screen with SA displayed.

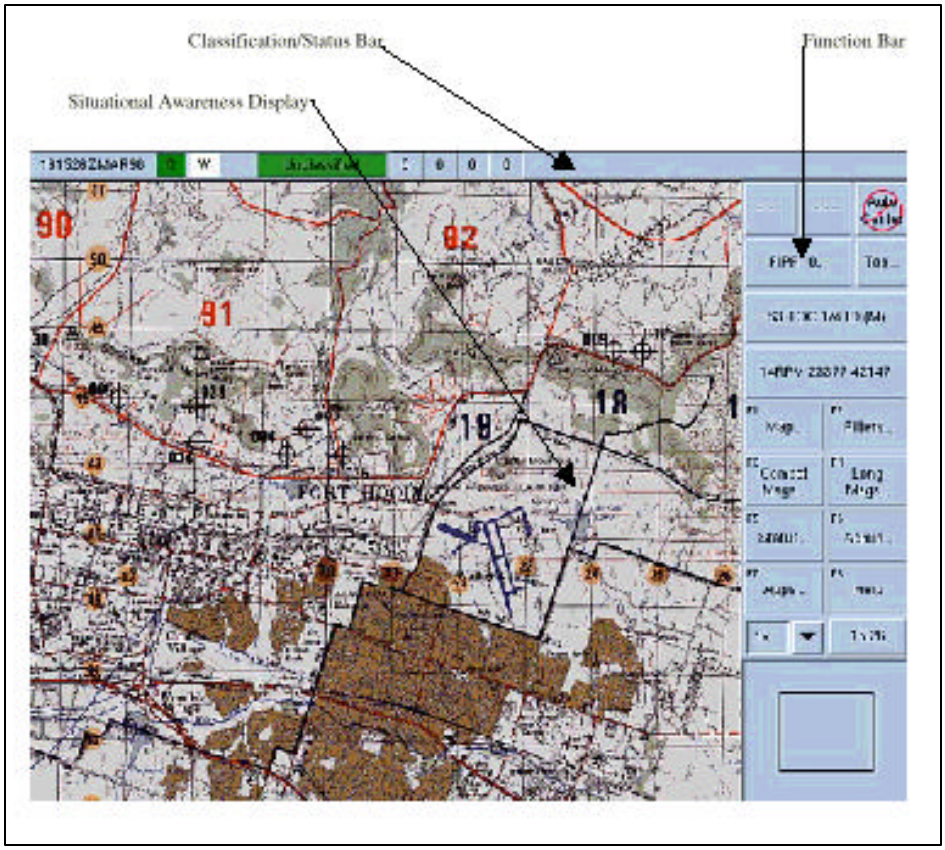


**Figure 2-7. FBCB2 OPS Main Screen**

2-21. The EBC software is a subset of the FBCB2 software, which is coresident on a host computer with another C2 application that provides the host display interface and functions. The EBC software provides the database, communications, SA, and message-processing functions to support the application, transport, and network layer interfaces to the TI. The EBC-Bradley interfaces to a INC within the vehicle. The EBC-TOC interfaces to the TOC switch via the LAN, then to a INC located in a TOC vehicle.

2-22. The SA picture is updated constantly on the operations main screen using dynamic filter settings without operator action. Many automatic functions help minimize operator typing. From the FBCB2, any operator can address any soldier in the brigade by role instead of net affiliation. Many knobs and parameters (default settings) are derived directly from computer dialogue. Refer to the FBCB2 Software User's Manual, FBCB2 Equipment Operator's Manual, and FBCB2 Pocket Guide for detailed software operation instructions.