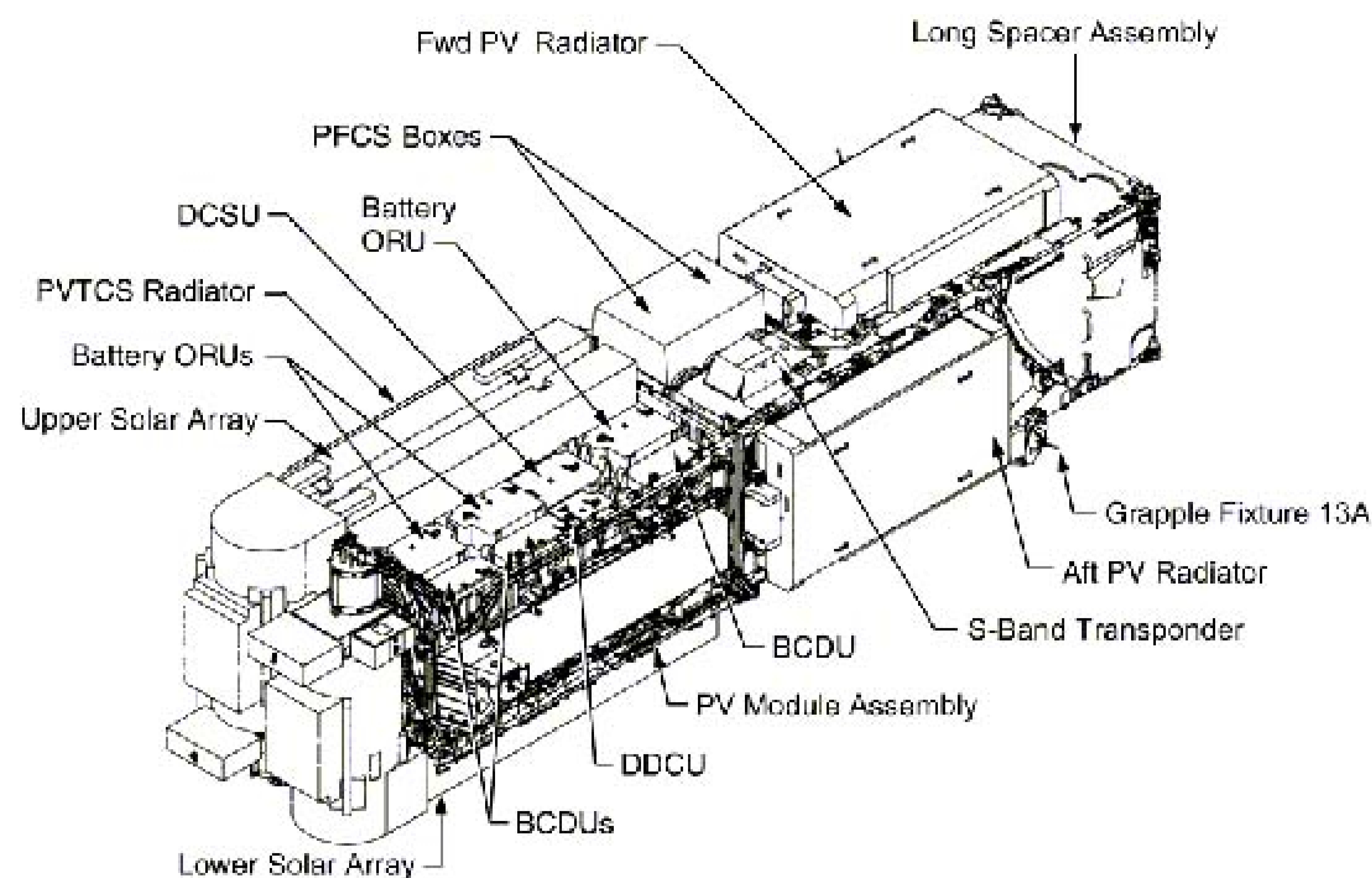


## PAYLOAD OVERVIEW

### Overview

STS-97 will build on and enhance the capabilities of the International Space Station (ISS), delivering the first set of U.S.-provided solar arrays and batteries, called the P6 photovoltaic module (PVM) and temporarily install the P6 Integrated truss structure (ITS) on the Z1 truss until it is relocated to its permanent location on the P5 truss during a later assembly mission.

The P6 Integrated Truss Structure is the primary payload for the STS-97 mission and contains three discrete elements: the **Photovoltaic Array Assembly (PVAA)**, the **Integrated Equipment Assembly (IEA)** and the **Long Spacer (LS)**.



### The P6 Integrated Truss Structure

Electrical power is the most critical resource for the ISS because it allows astronauts to live comfortably, safely operate the station, and perform complex scientific experiments. Whether used to power the life support system, run a furnace that makes crystals, manage a computerized data network, or operate a centrifuge, electricity is essential.

Since the only readily available source of energy for spacecraft is sunlight, technologies were developed to efficiently convert solar energy to electrical power. One way to do this is by using large numbers of solar cells assembled into arrays to produce high power levels. The cells are made from purified crystal ingots of silicon that directly convert light to electricity through a process called photovoltaics.

Solar cells do the job, but a spacecraft orbiting the Earth is not always in direct sunlight so energy has to be stored. Storing power in rechargeable batteries provides a continuous source of electricity while the spacecraft is in the Earth's shadow.